

=> d his ful

(FILE 'HOME' ENTERED AT 13:02:51 ON 15 JUN 2006)

FILE 'HCAPLUS' ENTERED AT 13:03:16 ON 15 JUN 2006

E US20040224251/PN

L1 1 SEA ABB=ON PLU=ON US20040224251/PN  
D SCAN  
SEL RN

FILE 'REGISTRY' ENTERED AT 13:04:43 ON 15 JUN 2006

L2 7 SEA ABB=ON PLU=ON (110-01-0/BI OR 116331-76-1/BI OR  
303177-16-4/BI OR 347193-28-6/BI OR 448220-56-2/BI OR  
5469-26-1/BI OR 81416-37-7/BI)

D SCAN

E SULFONIUM, TRIPHENYL/CN

E SULFONIUM, TRIPHENYL-/CN

L3 1 SEA ABB=ON PLU=ON SULFONIUM, TRIPHENYL-/CN  
D SCAN

D RN

L4 1 SEA ABB=ON PLU=ON 18393-55-0/RN  
D SCAN

FILE 'HCAPLUS' ENTERED AT 13:07:31 ON 15 JUN 2006

L5 25 SEA ABB=ON PLU=ON L4/D OR L4/DP

L6 75 SEA ABB=ON PLU=ON L4

E TOISHI K/AU

E TOISHI KOUJI/AU

L7 8 SEA ABB=ON PLU=ON TOISHI KOUJI/AU

E UETANI Y/AU

E UETANI YASUNORI/AU

L8 112 SEA ABB=ON PLU=ON UETANI YASUNORI/AU

L9 1 SEA ABB=ON PLU=ON L7 AND L8

D SCAN

SEL RN

FILE 'REGISTRY' ENTERED AT 13:13:41 ON 15 JUN 2006

L10 2 SEA ABB=ON PLU=ON (112047-48-0/BI OR 637035-72-4/BI)

FILE 'LREGISTRY' ENTERED AT 13:17:45 ON 15 JUN 2006

L11 STR

FILE 'REGISTRY' ENTERED AT 13:31:42 ON 15 JUN 2006

L12 45 SEA SSS SAM L11

D QUE STAT

L13 4125 SEA SSS FUL L11  
SAV L13 EGW456/A

FILE 'LREGISTRY' ENTERED AT 13:33:44 ON 15 JUN 2006

L14 STR L11

FILE 'REGISTRY' ENTERED AT 13:41:10 ON 15 JUN 2006

DIS

FILE 'LREGISTRY' ENTERED AT 13:41:50 ON 15 JUN 2006

L15 STR L14

FILE 'REGISTRY' ENTERED AT 13:43:14 ON 15 JUN 2006

L16 0 SEA SUB=L13 SSS SAM L15

D QUE STAT

L17 STR L14

FILE 'REGISTRY' ENTERED AT 13:46:24 ON 15 JUN 2006

L18 0 SEA SUB=L13 SSS SAM L17

L19 0 SEA SUB=L13 SSS FUL L17

L20 0 SEA SUB=L13 SSS FUL L15

L21 FILE 'LREGISTRY' ENTERED AT 13:47:37 ON 15 JUN 2006  
STR L11

L22 FILE 'REGISTRY' ENTERED AT 13:51:30 ON 15 JUN 2006  
L23 0 SEA SUB=L13 SSS SAM L21  
L24 0 SEA SUB=L13 SSS FUL L21  
D QUE STAT  
STR L11

L25 FILE 'REGISTRY' ENTERED AT 13:55:08 ON 15 JUN 2006  
L26 50 SEA SSS SAM L24  
SCR 1842 OR 1918  
D SCAN L2  
L27 SCR 1985 OR 2021  
L28 50 SEA SSS SAM L24 AND L27 NOT L26  
L29 SCR 2043 OR 2023 OR 1986  
L30 50 SEA SSS SAM L24 AND L27 NOT (L26 OR L29)  
D QUE STAT  
L31 SCR 2077  
L32 SCR 1992  
L33 50 SEA SSS SAM L24 AND L27 NOT (L26 OR L29 OR L31 OR L32)  
L34 252443 SEA SSS FUL L24 AND L27 NOT (L26 OR L29 OR L31 OR L32)  
SAV TEMP L34 EGW456/A

L35 FILE 'LREGISTRY' ENTERED AT 14:12:59 ON 15 JUN 2006  
STR L15

L36 FILE 'REGISTRY' ENTERED AT 14:13:51 ON 15 JUN 2006  
50 SEA SUB=L34 SSS SAM L35

L37 FILE 'LREGISTRY' ENTERED AT 14:15:17 ON 15 JUN 2006  
STR L17

L38 FILE 'REGISTRY' ENTERED AT 14:15:51 ON 15 JUN 2006  
50 SEA SUB=L34 SSS SAM L37  
D QUE STAT L17  
L39 0 SEA SUB=L34 SSS SAM L17  
D QUE STAT L38  
L40 1097 SEA SUB=L34 SSS FUL L37  
SAV L40 EGW456A/A

L41 FILE 'LREGISTRY' ENTERED AT 14:19:49 ON 15 JUN 2006  
STR

L42 FILE 'REGISTRY' ENTERED AT 14:21:12 ON 15 JUN 2006  
6 SEA SUB=L40 SSS SAM L41

L43 FILE 'LREGISTRY' ENTERED AT 14:23:37 ON 15 JUN 2006

L43 FILE 'REGISTRY' ENTERED AT 14:23:52 ON 15 JUN 2006  
0 SEA SUB=L34 SSS SAM L21

L44 FILE 'LREGISTRY' ENTERED AT 14:24:19 ON 15 JUN 2006  
STR L21

L45 FILE 'REGISTRY' ENTERED AT 14:25:29 ON 15 JUN 2006  
50 SEA SUB=L34 SSS SAM L44  
L46 1775 SEA SUB=L34 SSS FUL L44  
D QUE STAT L24

L47 FILE 'LREGISTRY' ENTERED AT 14:27:15 ON 15 JUN 2006  
STR

L48 FILE 'REGISTRY' ENTERED AT 14:35:28 ON 15 JUN 2006  
50 SEA SUB=L34 SSS SAM L47

L49 1848 SEA SUB=L34 SSS FUL L47  
SAV L46 EGW456B/A  
SAV L49 EGW456C/A

FILE 'HCAPLUS' ENTERED AT 14:40:12 ON 15 JUN 2006  
L50 621 SEA ABB=ON PLU=ON L40  
L51 3572 SEA ABB=ON PLU=ON L46  
S L47  
L52 3835 SEA ABB=ON PLU=ON L49  
L53 142 SEA ABB=ON PLU=ON L50 AND (L51 OR L52)  
D SCAN L1  
L54 9123 SEA ABB=ON PLU=ON (POS OR POSITIV?) (2A) (RESIST OR  
PHOTORESIST OR PHOTO(W)RESIST)  
L55 64 SEA ABB=ON PLU=ON L53 AND L54

FILE 'REGISTRY' ENTERED AT 14:50:49 ON 15 JUN 2006  
D SCAN L10

FILE 'LREGISTRY' ENTERED AT 14:54:33 ON 15 JUN 2006  
L56 STR

FILE 'REGISTRY' ENTERED AT 15:08:34 ON 15 JUN 2006  
DIS  
L57 SCR 2043  
L58 6 SEA SSS SAM L56 AND L57

FILE 'LREGISTRY' ENTERED AT 15:16:23 ON 15 JUN 2006  
L59 STR L56

FILE 'REGISTRY' ENTERED AT 15:16:58 ON 15 JUN 2006  
L60 8 SEA SSS SAM L59 AND L57  
L61 142 SEA SSS FUL L59 AND L57  
SAV L61 EGW456D/A

FILE 'LREGISTRY' ENTERED AT 15:20:02 ON 15 JUN 2006  
L62 STR L59

FILE 'REGISTRY' ENTERED AT 15:21:24 ON 15 JUN 2006  
L63 8 SEA SUB=L61 SSS SAM L62  
D SCAN  
D QUE STAT

FILE 'LREGISTRY' ENTERED AT 15:23:07 ON 15 JUN 2006  
L64 STR L62

FILE 'REGISTRY' ENTERED AT 15:23:42 ON 15 JUN 2006  
L65 8 SEA SUB=L61 SSS SAM L64  
D SCAN  
L66 142 SEA SUB=L61 SSS FUL L64

FILE 'HCAPLUS' ENTERED AT 15:26:24 ON 15 JUN 2006  
L67 73 SEA ABB=ON PLU=ON L66  
L68 20 SEA ABB=ON PLU=ON L67 AND L54  
L69 21 SEA ABB=ON PLU=ON L67 AND ((L50 OR L51 OR L52))  
D L69 1-21 TI CC  
L70 29 SEA ABB=ON PLU=ON L68 OR L69  
L71 421694 SEA ABB=ON PLU=ON REPROGR?/SC,SX  
L72 28 SEA ABB=ON PLU=ON L70 AND L71  
L73 29 SEA ABB=ON PLU=ON L70 OR L72

FILE 'REGISTRY' ENTERED AT 16:00:03 ON 15 JUN 2006  
L74 49 SEA SSS SAM L64

FILE 'HCAPLUS' ENTERED AT 16:00:03 ON 15 JUN 2006  
L75 52 SEA ABB=ON PLU=ON L74  
L76 5 SEA ABB=ON PLU=ON L55 AND (ALKALI (5A) INSOL?)

=> => d que stat 190  
L24 STR

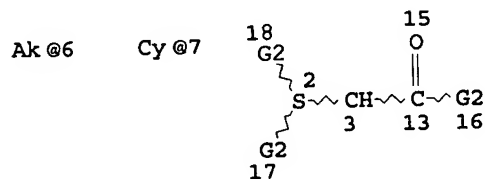
Ak @6      Cy @7

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

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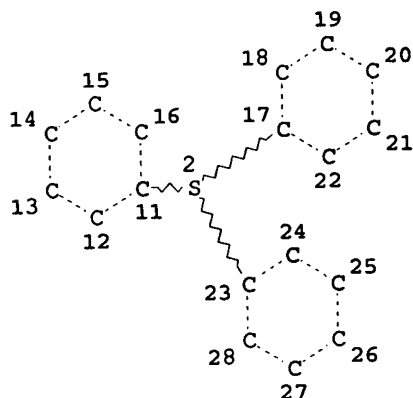
L26          SCR 1842 OR 1918
L27          SCR 1985 OR 2021
L29          SCR 2043 OR 2023 OR 1986
L31          SCR 2077
L32          SCR 1992
L34          252443 SEA FILE=REGISTRY SSS FUL L24 AND L27 NOT (L26 OR L29
                OR L31 OR L32)
L37          STR

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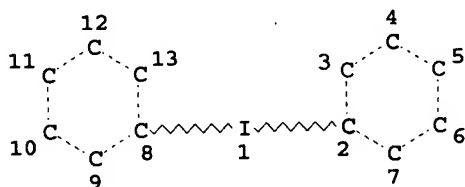


## Les Henderson

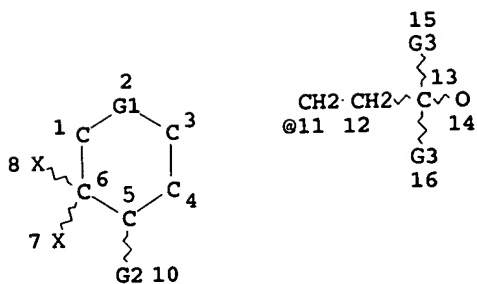
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L40 1097 SEA FILE=REGISTRY SUB=L34 SSS FUL L37  
L44 STR



STEREO ATTRIBUTES: NONE  
L46 1775 SEA FILE=REGISTRY SUB=L34 SSS FUL L44  
L47 STR



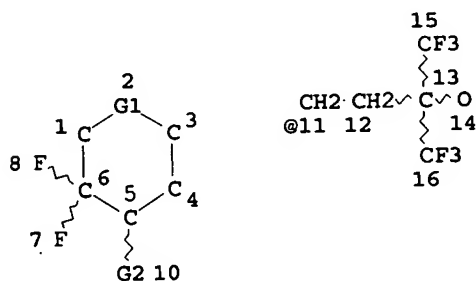
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L49      1848 SEA FILE=REGISTRY SUB=L34 SSS FUL L47
L50      621 SEA FILE=HCAPLUS ABB=ON   PLU=ON   L40
L51      3572 SEA FILE=HCAPLUS ABB=ON   PLU=ON   L46
L52      3835 SEA FILE=HCAPLUS ABB=ON   PLU=ON   L49
L54      9123 SEA FILE=HCAPLUS ABB=ON   PLU=ON   (POS OR POSITIV?) (2A) (
RESIST OR PHOTORESIST OR PHOTO(W) RESIST)
L57      SCR 2043
L59      STR
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REP G1=(0-1) C  
 VAR G2=O/11  
 VAR G3=CCL3/CBR3/CF3/CI3  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 15

STEREO ATTRIBUTES: NONE  
 L61 142 SEA FILE=REGISTRY SSS FUL L59 AND L57  
 L64 STR



REP G1=(0-1) C  
 VAR G2=O/OH/11  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 15

STEREO ATTRIBUTES: NONE  
 L66 142 SEA FILE=REGISTRY SUB=L61 SSS FUL L64  
 L67 73 SEA FILE=HCAPLUS ABB=ON PLU=ON L66  
 L68 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L67 AND L54  
 L69 21 SEA FILE=HCAPLUS ABB=ON PLU=ON L67 AND ((L50 OR L51  
 OR L52))  
 L70 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L68 OR L69  
 L71 421694 SEA FILE=HCAPLUS ABB=ON PLU=ON REPROGR?/SC,SX  
 L72 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L70 AND L71  
 L73 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L70 OR L72  
 L77 78 SEA FILE=HCAPLUS ABB=ON PLU=ON L50 AND L54  
 L78 QUE ABB=ON PLU=ON ALICYCL? OR (HETEROCYCL OR CARBONC  
 YCL? OR HYDROCARBON?(2A)RING)(3A)(SATD OR SATURAT?)  
 L79 30 SEA FILE=HCAPLUS ABB=ON PLU=ON L77 AND L78  
 L80 QUE ABB=ON PLU=ON ALKALI(5A)INSOLUBL?

L82 QUE ABB=ON PLU=ON HALOGEN OR HALID? OR BROMO OR BROM  
ID? OR FLUORO OR FLUORIN? OR CHLORO OR CHLORID? OR IODO  
OR IODID?

L83 12 SEA FILE=HCAPLUS ABB=ON PLU=ON L82 AND L79

L84 1243 SEA FILE=HCAPLUS ABB=ON PLU=ON ((L51 OR L52)) AND  
L54

L85 86 SEA FILE=HCAPLUS ABB=ON PLU=ON L84 AND L78 AND L82

L86 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L85 AND L80

L87 45 SEA FILE=HCAPLUS ABB=ON PLU=ON L73 OR L83 OR L86

L90 19 SEA FILE=HCAPLUS ABB=ON PLU=ON L87 AND 1907-2002/PY,P  
RY

=> d 190 1-19 ibib abs hitstr hitind

L90 ANSWER 1 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609279 HCAPLUS

DOCUMENT NUMBER: 141:148104

TITLE: Fluorinated norbornene compounds,  
silicon-containing derivatives of them,  
polysiloxanes from them, and  
radiation-sensitive compositions containing  
them

INVENTOR(S): Chiba, Takashi; Shimokawa, Tsutomu; Hayashi,  
Akihiro; Sugie, Norihiko

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 53 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

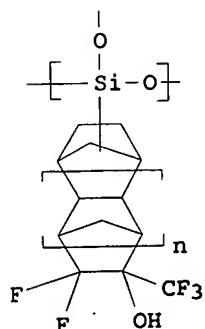
| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| JP 2004210771 | A2   | 20040729 | JP 2003-420199  | 2003<br>1217 |

PRIORITY APPLN. INFO.:

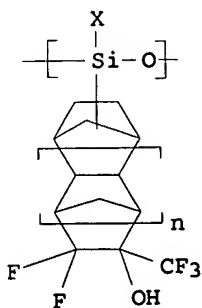
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JP 2002-365297 A  
2002  
1217

OTHER SOURCE(S):  
GI

MARPAT 141:148104



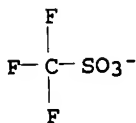
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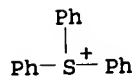
II

- AB The compns., useful for photoresists with good sensitivity to excimer lasers, resolution, and dry-etching resistance, contain the polysiloxanes (Mw 500-1,000,000, which are alkali-insol. but become alkali-soluble by dissociation of acid-labile groups) having units I and/or II [n = 0, 1; X = H, C1-20 (halogenated) hydrocarbyl, halo, amino] and radiation-sensitive photoacid generators.
- IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate  
144317-44-2, Triphenylsulfonium nonafluoro-n-butanesulfonate 227199-92-0 474516-38-6  
RL: CAT (Catalyst use); USES (Uses)  
(photoacid generator; radiation-sensitive photoresists containing polysiloxanes bearing fluorinated norbornene groups with good sensitivity, resolution, and dry etching resistance)
- RN 66003-78-9 HCAPLUS  
CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 37181-39-8  
CMF C F3 O3 S

CM 2

CRN 18393-55-0  
CMF C18 H15 S

- RN 144317-44-2 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

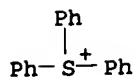
CM 1

CRN 45187-15-3  
CMF C4 F9 O3 S

CM 2

CRN 18393-55-0  
CMF C18 H15 S

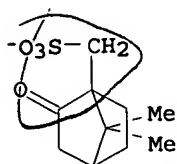




RN 227199-92-0 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with 7,7-dimethyl-2-oxobicyclo[2.2.1]heptane-1-methanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

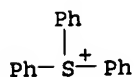
CM 1

CRN 55077-28-6  
 CMF C10 H15 O4 S



CM 2

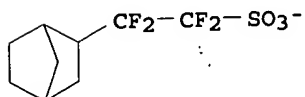
CRN 18393-55-0  
 CMF C18 H15 S



RN 474516-38-6 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with  $\alpha,\alpha,\beta,\beta$ -tetrafluorobicyclo[2.2.1]heptane-2-ethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

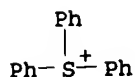
CM 1

CRN 474516-37-5  
 CMF C9 H11 F4 O3 S



CM 2

CRN 18393-55-0  
 CMF C18 H15 S



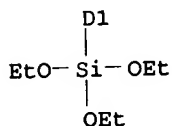
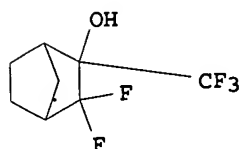
IT 727425-13-0P 727425-14-1P 727425-16-3P  
 727425-17-4P 727425-19-6P 727425-20-9P  
 727425-22-1P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (radiation-sensitive photoresists containing polysiloxanes bearing fluorinated norbornene groups with good sensitivity, resolution, and dry etching resistance)

RN 727425-13-0 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 3,3-difluoro-5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)bicyclo[2.2.1]heptan-2-ol (9CI) (CA INDEX NAME)

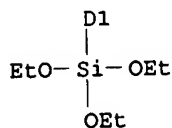
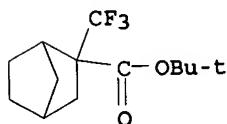
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CRN 727425-11-8  
 CMF C14 H23 F5 O4 Si  
 CCI IDS



CM 2

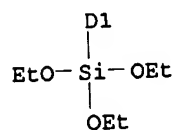
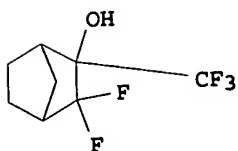
CRN 474559-06-3  
 CMF C19 H33 F3 O5 Si  
 CCI IDS



RN 727425-14-1 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 3,3-difluoro-5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)bicyclo[2.2.1]heptan-2-ol and 5(or 6)-(triethoxysilyl)-α,α-bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol (9CI) (CA INDEX NAME)

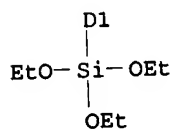
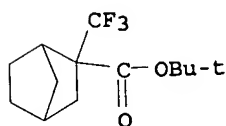
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CCI IDS



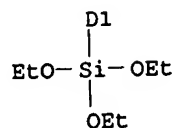
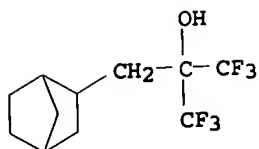
CM 2

CRN 474559-06-3  
CMF C19 H33 F3 O5 Si  
CCI IDS



CM 3

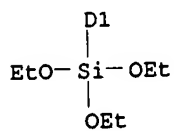
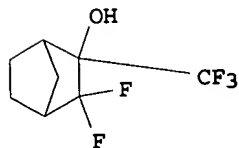
CRN 365546-74-3  
CMF C17 H28 F6 O4 Si  
CCI IDS



RN 727425-16-3 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-  
 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with  
 3,3-difluoro-5(or 6)-(triethoxysilyl)-2-  
 (trifluoromethyl)bicyclo[2.2.1]heptan-2-ol and triethoxy[5,5,6(or  
 5,6,6)-trifluoro-6(or 5)-(heptafluoropropoxy)bicyclo[2.2.1]hept-2-  
 yl]silane (9CI) (CA INDEX NAME)

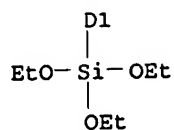
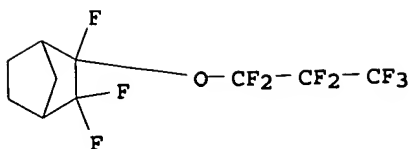
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CRN 727425-11-8  
 CMF C14 H23 F5 O4 Si  
 CCI IDS



CM 2

CRN 677308-22-4  
 CMF C16 H22 F10 O4 Si  
 CCI IDS

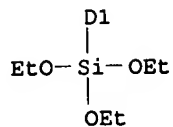
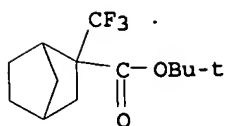


CM 3

CRN 474559-06-3

CMF C19 H33 F3 O5 Si

CCI IDS



RN 727425-17-4 HCAPLUS

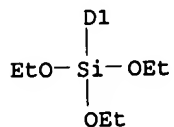
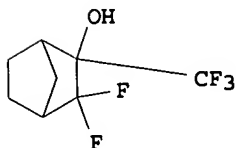
CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-(triethoxysilyl)-, 1,1-dimethylethyl ester, polymer with 3,3-difluoro-5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)bicyclo[2.2.1]heptan-2-ol and triethoxymethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 727425-11-8

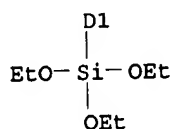
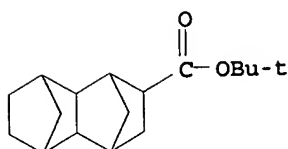
CMF C14 H23 F5 O4 Si

CCI IDS



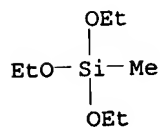
CM 2

CRN 365546-67-4  
 CMF C23 H40 O5 Si  
 CCI IDS



CM 3

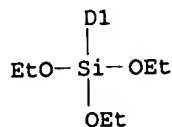
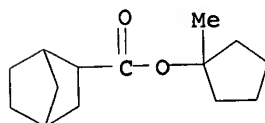
CRN 2031-67-6  
 CMF C7 H18 O3 Si



RN 727425-19-6 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-, 1-methylcyclopentyl ester, polymer with 3,3-difluoro-5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)bicyclo[2.2.1]heptan-2-ol and triethoxymethylsilane (9CI) (CA INDEX NAME)

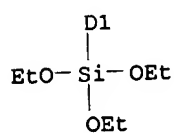
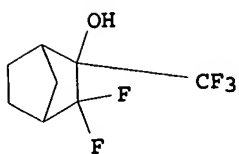
CM 1

CRN 727425-18-5  
 CMF C20 H36 O5 Si  
 CCI IDS



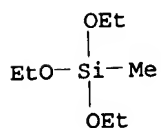
CM 2

CRN 727425-11-8  
 CMF C14 H23 F5 O4 Si  
 CCI IDS



CM 3

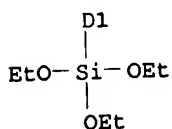
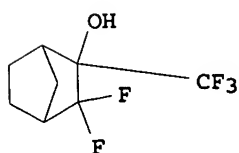
CRN 2031-67-6  
 CMF C7 H18 O3 Si



RN 727425-20-9 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-  
 , 1,1-dimethylethyl ester, polymer with 3,3-difluoro-5(or  
 6)-(triethoxysilyl)-2-(trifluoromethyl)bicyclo[2.2.1]heptan-2-ol  
 and triethoxymethylsilane (9CI) (CA INDEX NAME)

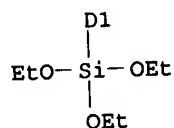
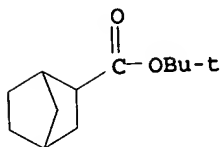
CM 1

CRN 727425-11-8  
 CMF C14 H23 F5 O4 Si  
 CCI IDS



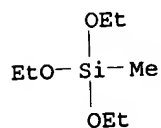
CM 2

CRN 365546-63-0  
 CMF C18 H34 O5 Si  
 CCI IDS



CM 3

CRN 2031-67-6  
 CMF C7 H18 O3 Si

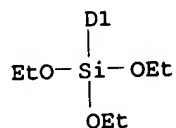
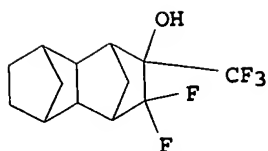


RN 727425-22-1 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-  
 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with  
 3,3-difluorodecahydro-6(or 7)-(triethoxysilyl)-2-(trifluoromethyl)-  
 1,4:5,8-dimethanonaphthalen-2-ol and 5(or 6)-(triethoxysilyl)-  
 $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-  
 ethanol (9CI) (CA INDEX NAME)

CM 1

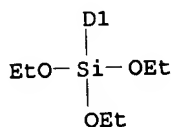
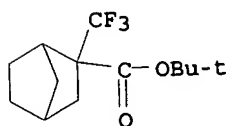
CRN 727425-12-9  
 CMF C19 H29 F5 O4 Si  
 CCI IDS





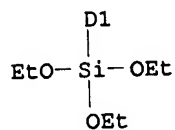
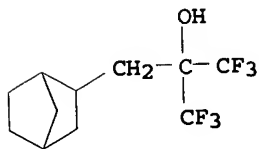
CM 2

CRN 474559-06-3  
 CMF C19 H33 F3 O5 Si  
 CCI IDS



CM 3

CRN 365546-74-3  
 CMF C17 H28 F6 O4 Si  
 CCI IDS



IC ICM C07F007-18  
 ICS C07C035-52; C08G077-24; G03F007-039; G03F007-075; H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)

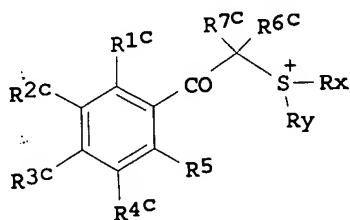
Section cross-reference(s): 24, 38  
 IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate  
 144317-44-2, Triphenylsulfonium nonafluoro-n-  
 butanesulfonate 227199-92-0 474516-38-6  
 RL: CAT (Catalyst use); USES (Uses)  
 (photoacid generator; radiation-sensitive photoresists containing  
 polysiloxanes bearing fluorinated norbornene groups with good  
 sensitivity, resolution, and dry etching resistance)  
 IT 727425-13-0P 727425-14-1P 727425-16-3P  
 727425-17-4P 727425-19-6P 727425-20-9P  
 727425-22-1P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered  
 material use); PREP (Preparation); USES (Uses)  
 (radiation-sensitive photoresists containing polysiloxanes bearing  
 fluorinated norbornene groups with good sensitivity, resolution,  
 and dry etching resistance)

L90 ANSWER 2 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:389962 HCAPLUS  
 DOCUMENT NUMBER: 140:383119  
 TITLE: Chemically amplified positive  
 resist compositions showing stable  
 post-exposure and -coating delay  
 INVENTOR(S): Sato, Kenichiro  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 68 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| JP 2004138663 | A2   | 20040513 | JP 2002-300750  | 2002<br>1015 |

PRIORITY APPLN. INFO.: JP 2002-300750  
 2002  
 1015

OTHER SOURCE(S): MARPAT 140:383119  
 GI



AB The compns., showing high transparency to far-UV light especially ArF  
 excimer laser light, comprise (A) resins increasing solubility in acids  
 by acid action and having unit CH<sub>2</sub>CR<sub>1</sub>CO<sub>2</sub>LZ [R<sub>1</sub> = H, Me; L = single  
 bond, alkylene, ether, ester, and/or CO; Z = CO<sub>2</sub>H, OH, COCH<sub>2</sub>COR<sub>4</sub>  
 (R<sub>4</sub> = hydrocarbonyl)], CH<sub>2</sub>CR<sub>2</sub>ACO<sub>2</sub>ALG (R<sub>2</sub> = H, Me; A = single bond,  
 bridging group; ALG = prescribed alicyclic substituent  
 etc.), and CH<sub>2</sub>CR<sub>3</sub>A<sub>3</sub>Z<sub>3</sub>(OH)<sub>p</sub> [R<sub>3</sub> = H, Me; A<sub>3</sub> = single bond, bivalent

bridging group; Z3 = (p + 1)-valent alicyclic hydrocarbyl; p = 1-3], (B) radiation-sensitive acid generators I (R1c-R5c = H, alkyl, alkoxy, halo; R6c, R7c = H, alkyl, aryl; Rx, Ry = alkyl, 2-oxoalkyl, alkoxycarbonylmethyl, etc.; X- = sulfonate, carboxylate, sulfonylimide), and (C) solvents.

IT 474510-73-1

RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)  
(photoacid generators; **pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

RN 474510-73-1 HCAPLUS

CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

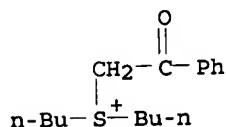
CM 1

CRN 45187-15-3  
CMF C4 F9 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>3</sub>-CF<sub>3</sub>

CM 2

CRN 19023-62-2  
CMF C16 H25 O S



IC ICM G03F007-039

ICS C08F220-28; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38

ST amplified **pos photoresist** post exposure delay stability; argon fluoride excimer transparency **pos resist**; phenacylsulfonium photoacid generator amplified photoresist process margin

IT Photoresists

(UV, far-UV, **pos.-working**; **pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT Resists

(**pos.-working**, chemical amplified; **pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate

RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)

(photoacid cgenerators; **pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 301664-71-1P 301664-72-2P 398141-19-0P

RL: CAT (Catalyst use); IMF (Industrial manufacture); TEM

(Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (photoacid generators; pos. resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 144317-44-2, Triphenylsulfonium nonafluorobutanesulfonate  
 258872-05-8, Diphenyl(4-tert-butylphenyl)sulfonium  
 nonafluorobutanesulfonate 454471-07-9 454471-11-5  
 470482-89-4 474510-73-1  
 RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)  
 (photoacid generators; pos. resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 19158-66-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (pos. resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 683809-88-3P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (pos. resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 70-11-1, Phenacyl bromide 110-01-0,  
 Tetrahydrothiophene 29420-49-3, Potassium  
 perfluorobutanesulfonate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (pos. resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 680223-07-8 680223-09-0 683809-90-7 683809-91-8  
 683811-62-3  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (pos. resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

L90 ANSWER 3 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:330252 HCAPLUS  
 DOCUMENT NUMBER: 140:347515  
 TITLE: Silicon compounds, polysiloxanes from them,  
 and radiation-sensitive resin compositions  
 containing the polysiloxanes  
 Chiba, Takashi; Iwasawa, Haruo; Hayashi,  
 Akihiro; Shimokawa, Tsutomu  
 INVENTOR(S): JSR Ltd., Japan  
 PATENT ASSIGNEE(S): Jpn. Kokai Tokkyo Koho, 59 pp.  
 SOURCE: CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| -----         | ---- | -----    | -----           |              |
| JP 2004123793 | A2   | 20040422 | JP 2002-285855  | 2002<br>0930 |

PRIORITY APPLN. INFO.: <-- JP 2002-285855 2002  
 0930

&lt;--

OTHER SOURCE(S): MARPAT 140:347515

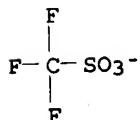
AB R1SiR12X1C(CHmF3-m)(CHnF3-n)OSiR23 [I; X1 = (un)substituted C2-20 hydrocarbylene; R1, R2 = H, halo, C1-20 alkoxy, cycloalkoxy, C1-20 (halo)hydrocarbyl; 2 or 3 of R1 and R2 = halo, C1-20 alkoxy, cycloalkoxy; m, n = 0-3; n + m < 6] are claimed. Polysiloxanes with Mn 500-1,000,000 (based on polystyrene stds., measured by GPC) manufactured by polymerizing I are also claimed. The radiation-sensitive resin compns. contain (a) among the polysiloxanes, those which are insol. or slightly soluble in alkalis, bear acid-dissociable group and become alkali-soluble after the groups are dissociated and (B) radiation-sensitive acid generators. The compns. show high transparency to  $\leq 193$ -nm light especially 157-nm F2 excimer laser, high resolution, and good dry-etching resistance.

IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate  
144317-44-2, Triphenylsulfonium nonafluoro-n-butane  
sulfonate 227199-92-0 474516-38-6  
RL: CAT (Catalyst use); USES (Uses)  
(silyl ether group-containing compds. and polysiloxanes therefrom for resists with high transmittance to  $\leq 193$ -nm light and good dry etching resistance)

RN 66003-78-9 HCAPLUS  
CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

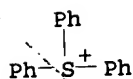
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CRN 37181-39-8  
CMF C F3 O3 S



CM 2

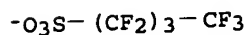
CRN 18393-55-0  
CMF C18 H15 S



RN 144317-44-2 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonic acid (1:1) (9CI) (CA INDEX NAME)

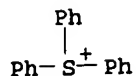
CM 1

CRN 45187-15-3  
CMF C4 F9 O3 S



CM 2

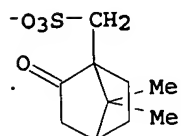
CRN 18393-55-0  
CMF C18 H15 S



RN 227199-92-0 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 7,7-dimethyl-2-oxobicyclo[2.2.1]heptane-1-methanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

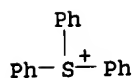
CM 1

CRN 55077-28-6  
CMF C10 H15 O4 S



CM 2

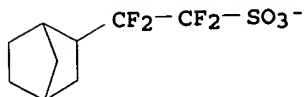
CRN 18393-55-0  
CMF C18 H15 S



RN 474516-38-6 HCAPLUS  
CN Sulfonium, triphenyl-, salt with  $\alpha,\alpha,\beta,\beta$ -tetrafluorobicyclo[2.2.1]heptane-2-ethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

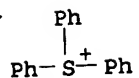
CM 1

CRN 474516-37-5  
CMF C9 H11 F4 O3 S



CM 2

CRN 18393-55-0  
CMF C18 H15 S

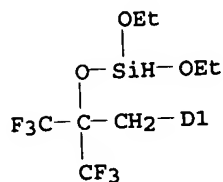
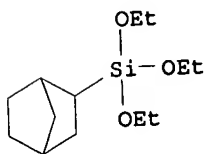


IT 681007-59-0P 681007-62-5P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (silyl ether group-containing compds. and polysiloxanes therefrom for resists with high transmittance to  $\leq 193$ -nm light and good dry etching resistance)

RN 681007-59-0 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with [5(or 6)-[2-[(diethoxysilyl)oxy]-3,3,3-trifluoro-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl]triethoxysilane, 5(or 6)-(triethoxysilyl)- $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol and triethoxy[5,5,6(or 5,6,6)-trifluoro-6(or 5)-(heptafluoropropoxy)bicyclo[2.2.1]hept-2-yl]silane (9CI) (CA INDEX NAME)

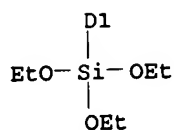
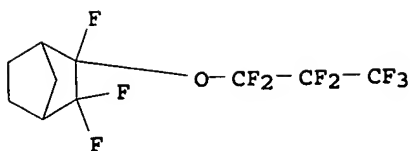
CM 1

CRN 681007-58-9  
 CMF C21 H38 F6 O6 Si2  
 CCI IDS



CM 2

CRN 677308-22-4  
 CMF C16 H22 F10 O4 Si  
 CCI IDS

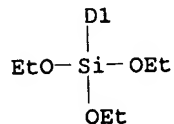
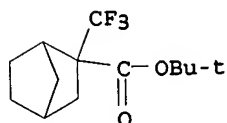


CM 3

CRN 474559-06-3

CMF C19 H33 F3 O5 Si

CCI IDS

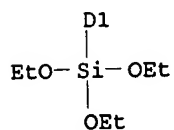
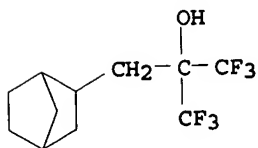


CM 4

CRN 365546-74-3

CMF C17 H28 F6 O4 Si

CCI IDS



RN 681007-62-5 HCAPLUS

CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-  
2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with [5(or  
6)-[2-[(diethoxysilyl)oxy]-3,3,3-trifluoro-2-



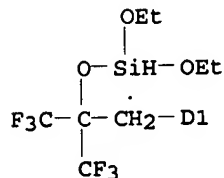
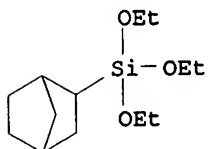
(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl]triethoxysilane  
 and triethoxy[5,5,6(or 5,6,6)-trifluoro-6(or 5)-  
 (heptafluoropropoxy)bicyclo[2.2.1]hept-2-yl]silane (9CI) (CA  
 INDEX NAME)

CM 1

CRN 681007-58-9

CMF C21 H38 F6 O6 Si2

CCI IDS

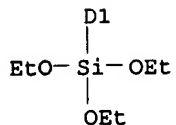
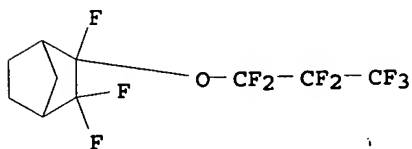


CM 2

CRN 677308-22-4

CMF C16 H22 F10 O4 Si

CCI IDS

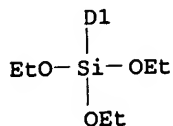
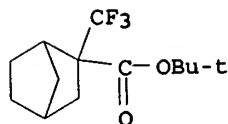


CM 3

CRN 474559-06-3

CMF C19 H33 F3 O5 Si

CCI IDS



IC ICM C08G077-50  
ICS C07F007-18; G03F007-039; G03F007-075; H01L021-027  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 37  
IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate  
144317-44-2, Triphenylsulfonium nonafluoro-n-butane  
sulfonate 227199-92-0 474516-38-6  
RL: CAT (Catalyst use); USES (Uses)  
(silyl ether group-containing compds. and polysiloxanes therefrom  
for resists with high transmittance to  $\leq 193$ -nm light and  
good dry etching resistance)  
IT 681007-59-0P 681007-60-3P 681007-61-4P  
681007-62-5P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)  
(silyl ether group-containing compds. and polysiloxanes therefrom  
for resists with high transmittance to  $\leq 193$ -nm light and  
good dry etching resistance)

L90 ANSWER 4 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:287063 HCAPLUS

DOCUMENT NUMBER: 140:329526

TITLE: Fluorine-containing norbornenes, their  
silicon-containing derivatives, polysiloxanes  
with fluorine-containing norbornane backbones,  
and radiation-sensitive compositions for  
resists

INVENTOR(S): Chiba, Takashi; Shimokawa, Tsutomu; Hayashi,  
Akihiro

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 81 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| JP 2004107277 | A2   | 20040408 | JP 2002-273899  | 2002<br>0919 |

PRIORITY APPLN. INFO.:

JP 2002-273899

2002  
0919

OTHER SOURCE(S):  
GI

MARPAT 140:329526

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT

AB The F-containing norbornenes are represented by the general formula I (Z1 = H, F, C1-4 monovalent fluorinated hydrocarbyl; not all of Z1 is H; R1 = CH2OH, AR'; A = O, CF2; R' = C1-10 monovalent hydrocarbyl which may be halogenated or substituted with OH; n = 0, 1). The Si-containing derivs. of I are represented by the general formulas II and III [X1 = H, C1-20 (halogenated) monovalent hydrocarbyl, halo, amino; Y1 = C1-20 (halogenated) monovalent hydrocarbyl; X2 = H, C1-20 (halogenated) monovalent hydrocarbyl, halo, amino, C1-20 alkoxyl; Z1 = same as I; x = 0-2 integer, y = 3-5 integer; n = 0, 1]. The polysiloxanes prepared from II and/or III, with polystyrene-based Mw 500-1,000,000 by GPC, is also claimed. The radiation-sensitive resin compns. contain, (A) among the polysiloxanes, those which are insol. or slightly soluble in alkalis, bear acid-dissociable group and become alkali-soluble after the groups are dissociated and (B) radiation-sensitive acid generators.

IT 677308-25-7P 677308-26-8P 677308-28-0P

677308-30-4P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(F-containing norbornenes, their Si-containing derivs., and polysiloxanes with F-containing norbornane backbones for resists with high transmittance to  $\leq 200$ -nm radiation)

RN 677308-25-7 HCAPLUS

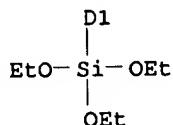
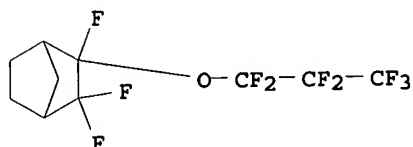
CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 5(or 6)-(triethoxysilyl)- $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol and triethoxy[5,5,6(or 6,6,5)-trifluoro-6(or 5)-(heptafluoropropoxy)bicyclo[2.2.1]hept-2-yl]silane (9CI) (CA INDEX NAME)

CM 1

CRN 677308-22-4

CMF C16 H22 F10 O4 Si

CCI IDS

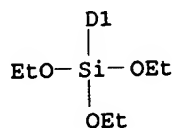
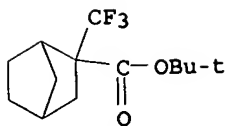


CM 2

CRN 474559-06-3

CMF C19 H33 F3 O5 Si

CCI IDS

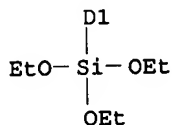
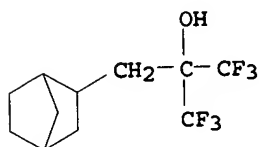


CM 3

CRN 365546-74-3

CMF C17 H28 F6 O4 Si

CCI IDS



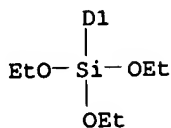
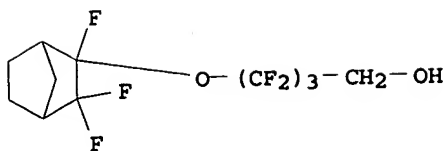
RN 677308-26-8 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-  
 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 5(or  
 6)-(triethoxysilyl)- $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.  
 2.1]heptane-2-ethanol and 4-[[2,3,3-trifluoro-5(or  
 6)-(triethoxysilyl)bicyclo[2.2.1]hept-2-yl]oxy]-1-butanol (9CI)  
 (CA INDEX NAME)

CM 1

CRN 677308-23-5

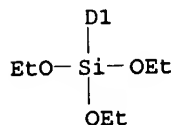
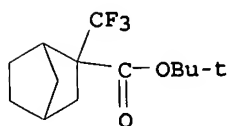
CMF C17 H25 F9 O5 Si

CCI IDS



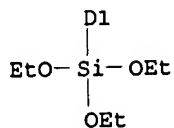
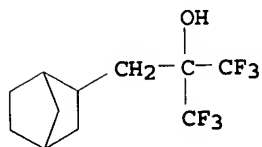
CM 2

CRN 474559-06-3  
 CMF C19 H33 F3 O5 Si  
 CCI IDS



CM 3

CRN 365546-74-3  
 CMF C17 H28 F6 O4 Si  
 CCI IDS

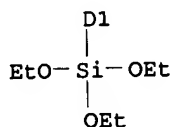
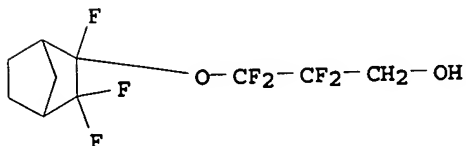


RN 677308-28-0 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-  
 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with  
 2,2,3,3-tetrafluoro-3-[[2,3,3-trifluoro-5(or 6)-

(triethoxysilyl)bicyclo[2.2.1]hept-2-yl[oxy]-1-propanol and 5(or  
6)-(triethoxysilyl)- $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.  
2.1]heptane-2-ethanol (9CI) (CA INDEX NAME)

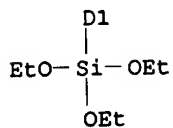
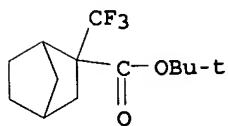
CM 1

CRN 677308-27-9  
CMF C16 H25 F7 O5 Si  
CCI IDS



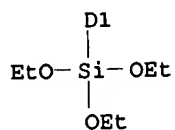
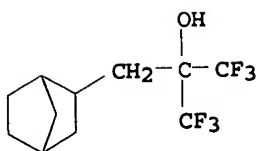
CM 2

CRN 474559-06-3  
CMF C19 H33 F3 O5 Si  
CCI IDS



CM 3

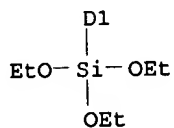
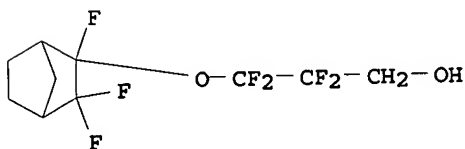
CRN 365546-74-3  
CMF C17 H28 F6 O4 Si  
CCI IDS



RN 677308-30-4 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 2,2,3,3,4,4-hexafluoro-4-[[2,3,3-trifluoro-5(or 6)-(triethoxysilyl)bicyclo[2.2.1]hept-2-yl]oxy]-1-butanol, 2,2,3,3-tetrafluoro-3-[[2,3,3-trifluoro-5(or 6)-(triethoxysilyl)bicyclo[2.2.1]hept-2-yl]oxy]-1-propanol and 5(or 6)-(triethoxysilyl)- $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol (9CI) (CA INDEX NAME)

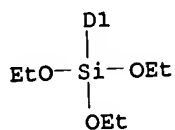
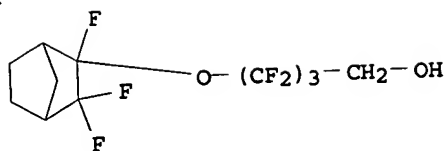
CM 1

CRN 677308-27-9  
 CMF C16 H25 F7 O5 Si  
 CCI IDS



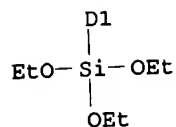
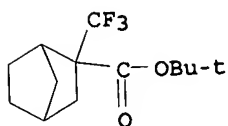
CM 2

CRN 677308-23-5  
 CMF C17 H25 F9 O5 Si  
 CCI IDS



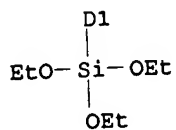
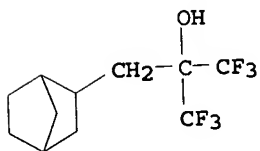
CM 3

CRN 474559-06-3  
 CMF C19 H33 F3 O5 Si  
 CCI IDS



CM 4

CRN 365546-74-3  
 CMF C17 H28 F6 O4 Si  
 CCI IDS



IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate  
 144317-44-2, Triphenylsulfonium nonafluoro-n-butane  
 sulfonate 227199-92-0 474516-38-6  
 RL: CAT (Catalyst use); USES (Uses)

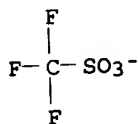


(photoacid generator; F-containing norbornenes, their Si-containing derivs., and polysiloxanes with F-containing norbornane backbones for resists with high transmittance to  $\leq 200$ -nm radiation)

RN 66003-78-9 HCAPLUS  
CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

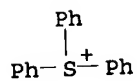
CM 1

CRN 37181-39-8  
CMF C F3 O3 S



CM 2

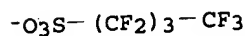
CRN 18393-55-0  
CMF C18 H15 S



RN 144317-44-2 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

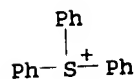
CM 1

CRN 45187-15-3  
CMF C4 F9 O3 S



CM 2

CRN 18393-55-0  
CMF C18 H15 S

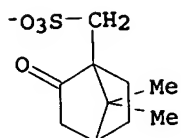


RN 227199-92-0 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 7,7-dimethyl-2-oxobicyclo[2.2.1]heptane-1-methanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

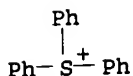
CRN 55077-28-6

CMF C10 H15 O4 S



CM 2

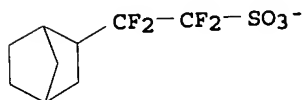
CRN 18393-55-0  
CMF C18 H15 S



RN 474516-38-6 HCAPLUS  
CN Sulfonium, triphenyl-, salt with  $\alpha,\alpha,\beta,\beta$ -tetrafluorobicyclo[2.2.1]heptane-2-ethanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

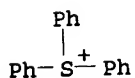
CM 1

CRN 474516-37-5  
CMF C9 H11 F4 O3 S



CM 2

CRN 18393-55-0  
CMF C18 H15 S



IC ICM C07C043-192  
ICS C07C043-196; C07F007-12; C07F007-18; C08G077-14; C08G077-24;  
G03F007-039; H01L021-027  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 24, 37  
IT 677308-25-7P 677308-26-8P 677308-28-0P  
677308-30-4P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)  
(F-containing norbornenes, their Si-containing derivs., and  
polysiloxanes with F-containing norbornane backbones for resists  
with high transmittance to  $\leq 200$ -nm radiation)  
IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate

144317-44-2, Triphenylsulfonium nonafluoro-n-butane  
sulfonate 227199-92-0 474516-38-6

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; F-containing norbornenes, their Si-containing  
derivs., and polysiloxanes with F-containing norbornane backbones  
for resists with high transmittance to  $\leq 200$ -nm  
radiation)

L90 ANSWER 5 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:269885 HCAPLUS

DOCUMENT NUMBER: 140:311995

TITLE: **Positive resist**  
composition and pattern formation method

INVENTOR(S): Nishiyama, Fumiyuki; Sato, Kenichiro; Kodama,  
Kunihiko

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 56 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

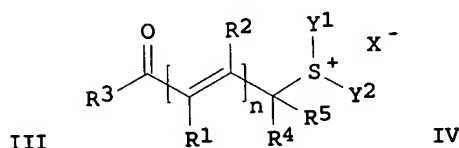
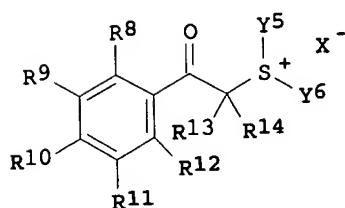
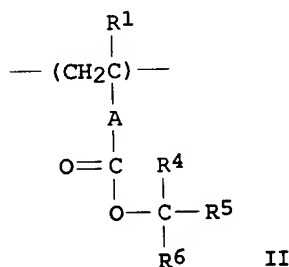
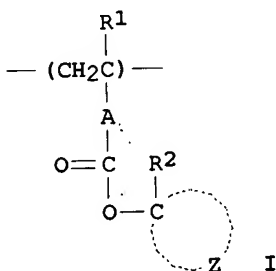
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE              |
|------------------------|------|----------|-----------------|-------------------|
| -----                  | ---  | -----    | -----           |                   |
| US 2004063827          | A1   | 20040401 | US 2003-669603  | 2003<br>0925      |
|                        |      |          | <--             |                   |
| JP 2004145298          | A2   | 20040520 | JP 2003-315478  | 2003<br>0908      |
|                        |      |          | <--             |                   |
| PRIORITY APPLN. INFO.: |      |          | JP 2002-287252  | A<br>2002<br>0930 |
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|                        |      |          | JP 2002-287393  | A<br>2002<br>0930 |
|                        |      |          | <--             |                   |

GI

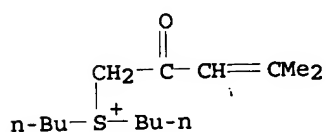


AB A pos. resist composition comprising: (A) a resin having alicyclic hydrocarbon groups in side chains, containing repeating units of general formulas I and II (R1 = H, alkyl; A = linkage group, R2 = C1-4-alkyl; Z = group forming an alicyclic hydrocarbon group together with the carbon atom; R4-R6 = hydrocarbon group, alicyclic hydrocarbon) which increases the solubility in an alkali developing solution by the action of an acid; and (B) a particular sulfonium compound having a general structures of formulas III and IV (R1-R3 = H, alkyl, alkenyl, aryl, alkoxy; R4, R5 = H, cyano, alkyl, aryl, alkoxy; Y1, Y2 = alkyl, aryl, aralkyl, heteroatom-containing aromatic group; n = 1-4; R8-R12 = H, nitro, halogen, alkyl, alkoxy, alkyloxycarbonyl, aryl, acylamino, with the proviso that at least two of R8-R12 may be bonded with each other to form a ring; R13 = H, cyano, alkyl, aryl; R14 = alkyl, aryl; Y5, Y6 = alkyl, aryl, aralkyl, heteroatom-containing aromatic group, Y5 and Y6 may be bonded with each other to form a ring; X- = non-nucleophilic anion) which is capable of generating an acid upon irradiation with an actinic ray or radiation. The object of the present invention is to provide a pos. resist composition that is used suitably in micro-photofabrication utilizing far UV light, notably ArF excimer laser beam, and offers excellent line edge roughness performance and excellent pattern collapse performance.

IT 524959-16-8 610301-07-0 610301-16-1  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (photoacid generator; pos. resist composition  
 and pattern formation method)  
 RN 524959-16-8 HCAPLUS  
 CN Sulfonium, dibutyl(4-methyl-2-oxo-3-pentenyl)-, salt with  
 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

CM 1

CRN 524959-15-7  
 CMF C14 H27 O S



CM 2

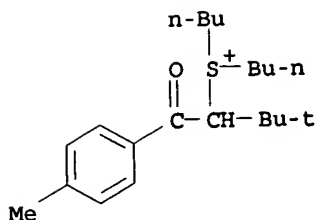
CRN 45187-15-3  
 CMF C4 F9 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>3</sub>-CF<sub>3</sub>

RN 610301-07-0 HCAPLUS  
 CN Sulfonium, dibutyl[2,2-dimethyl-1-(4-methylbenzoyl)propyl]-, salt  
 with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonic acid (1:1)  
 (9CI) (CA INDEX NAME)

CM 1

CRN 610301-06-9  
 CMF C21 H35 O S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>3</sub>-CF<sub>3</sub>

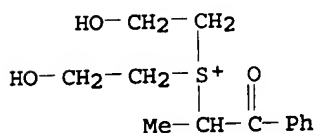
RN 610301-16-1 HCAPLUS

CN Sulfonium, bis(2-hydroxyethyl) (1-methyl-2-oxo-2-phenylethyl)-,  
salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 610301-15-0

CMF C13 H19 O3 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>3</sub>-CF<sub>3</sub>

IC ICM C08K005-41

INCL 524155000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 38

ST **pos resist** compn photolithog UV pattern  
formation method

IT Polysiloxanes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(KP-341, Troysol S-366; **pos. resist** composition  
and pattern formation method)

IT Photolithography  
(UV; **pos. resist** composition and pattern  
formation method)

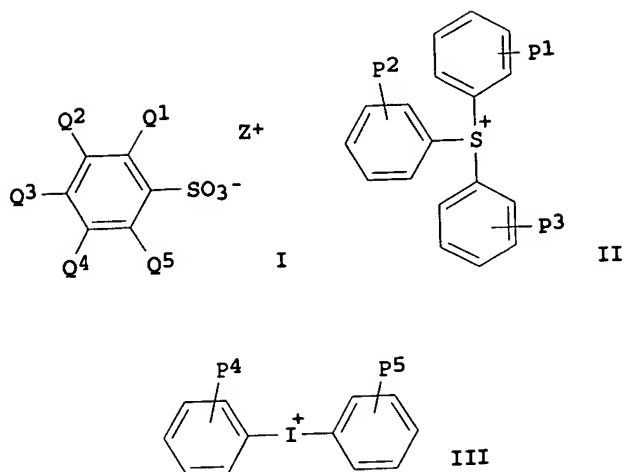
IT **Positive photoresists**  
(**pos. resist** composition and pattern formation)

method)  
 IT 470482-89-4 524959-11-3 524959-16-8 524959-18-0  
 524959-28-2 610301-07-0 610301-08-1 610301-09-2  
 610301-13-8 610301-16-1 610301-21-8 610301-28-5  
 610301-34-3 676502-09-3 676502-10-6 676502-11-7  
 676502-13-9 676502-14-0 676502-16-2 676502-18-4  
 676502-20-8 676502-22-0 676502-24-2 676502-25-3  
 676502-26-4 676502-27-5 676502-29-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (photoacid generator; pos. resist composition  
 and pattern formation method)  
 IT 479081-07-7P 479081-08-8P 479081-10-2P 479081-11-3P  
 479081-12-4P 479081-13-5P 479081-14-6P 479081-15-7P  
 479081-18-0P 479081-19-1P 479081-21-5P 479081-22-6P  
 479081-24-8P 676502-04-8P 676502-05-9P 676502-07-1P  
 676502-08-2P 676522-31-9P  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical  
 or engineered material use); PREP (Preparation); USES (Uses)  
 (pos. resist composition and pattern formation  
 method)  
 IT 60-80-0, Antipyrine 102-82-9, Tri-n-butylamine 3001-72-7,  
 1,5-Diazabicyclo[4.3.0]-5-nonene 9016-45-9, Polyoxyethylene  
 nonyl phenyl ether 24544-04-5, 2,6-Diisopropylaniline  
 36631-19-3, Triphenylimidazole 41556-26-7, Bis(1,2,2,6,6,-penta  
 methyl-4-piperidyl)sebacate 137462-24-9, Megafac F176  
 216679-67-3, Megafac R08  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (pos. resist composition and pattern formation  
 method)

L90 ANSWER 6 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:219910 HCAPLUS  
 DOCUMENT NUMBER: 140:278422  
 TITLE: Chemical amplification type resist composition  
 INVENTOR(S): Takata, Yoshiyuki; Yoshida, Isao; Nakanishi,  
 Hirotooshi  
 PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan  
 SOURCE: U.S. Pat. Appl. Publ., 22 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE              | APPLICATION NO. | DATE              |
|------------------------|------|-------------------|-----------------|-------------------|
| US 2004053171          | A1   | 20040318          | US 2003-657149  | 2003<br>0909      |
| CN 1488996             | A    | 20040414          | CN 2003-156561  | 2003<br>0909      |
| JP 2004126572          | A2   | 20040422          | JP 2003-319438  | 2003<br>0911      |
| PRIORITY APPLN. INFO.: |      |                   | JP 2002-266539  | A<br>2002<br>0912 |
| OTHER SOURCE(S):       |      | MARPAT 140:278422 |                 |                   |
| GI                     |      |                   |                 |                   |



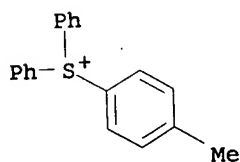
AB The present invention provides a chemical amplification type **pos. resist** composition comprising (1) a nitrogen containing compound of the formula  $A(-X-N(R_{13})C(=O)R_{14})_n$  or  $A(-X-C(=O)N(R_{15})R_{16})_n$  ( $A$  = alicyclic hydrocarbon group;  $X$  = C1-4 alkylene, single bond;  $R_{13-16}$  = H, C1-12 alkyl, C3-12 cycloalkyl, C1-12 haloalkyl, etc.;  $n$  = 1-5); (2) resin which contains a structural unit having an acid labile group and which itself is *insol.* or poorly soluble in an **alkali** aqueous solution but becomes soluble in an alkali aqueous solution by the action of an acid; and (3) an acid generator of the formula I ( $Q_1-5$  = H, hydroxyl, C1-12 alkyl, alkoxy;  $Z^+$  = II ( $P_1-3$  = H, hydroxyl, C1-6 allyl and alkoxy), III ( $P_4,5$  = H, hydroxyl, C1-6 allyl and alkoxy),  $P_6P_7S^+-CH(P_8)C(=O)P_9$  ( $P_6,7$  = C1-6 alkyl, C3-10 cycloalkyl, etc.;  $P_8$  = H;  $P_9$  = C1-6 alkyl, C3-10 cycloalkyl, aromatic group, etc.)).

IT 3744-09-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(chemical amplification type resist composition containing)

RN 3744-09-0 HCAPLUS

CN Sulfonium, (4-methylphenyl)diphenyl-, iodide (9CI) (CA INDEX NAME)



● I<sup>-</sup>

IC ICM G03C005-00

INCL 430311000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 99-63-8, Isophthaloyl chloride 101-83-7,  
Dicyclohexylamine 108-91-8, Cyclohexylamine, reactions

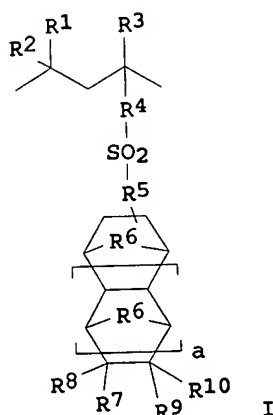
768-94-5, 1-Adamantanamine 2719-27-9, Cyclohexylcarbonyl  
chloride 3282-30-2, Pivaloyl chloride  
3744-09-0 656823-65-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(chemical amplification type resist composition containing)

L90 ANSWER 7 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:180145 HCAPLUS  
DOCUMENT NUMBER: 140:225800  
TITLE: Chemically amplified photoresists and method  
for pattern formation  
INVENTOR(S): Harada, Yuji; Hatakeyama, Jun; Kawai, Yoshio;  
Sasako, Masaru; Endo, Masataka; Kishimura,  
Shinji; Maeda, Kazuhiko; Otani, Michitaka;  
Komoritani, Haruhiko  
PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan;  
Matsushita Electric Industrial Co., Ltd.;  
Central Glass Co., Ltd.  
SOURCE: Jpn. Kokai Tokkyo Koho, 41 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.                            | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------------------------------|------|----------|-----------------|--------------|
| JP 2004067972                         | A2   | 20040304 | JP 2002-233045  | 2002<br>0809 |
| <--                                   |      |          |                 |              |
| PRIORITY APPLN. INFO.: JP 2002-233045 |      |          |                 | 2002<br>0809 |
| <--                                   |      |          |                 |              |

GI



AB The photoresists contain polymers of Mw 1000-500,000 having repeating units I [R1-R3 = H, F, (fluorinated) C1-40 alkyl; R4 = single bond, (fluorinated) C1-40 alkylene; R5 = single bond, O, (fluorinated) C1-40 alkylene; R6 = methylene, O, S; R7-R10 = H, F, (fluorinated) C1-4 alkyl, R11OR12, R11CO2R12, OR12; R11 = single bond, (fluorinated) C1-40 alkylene; R12 = H, acid-labile group; a



= 0, 1]. The photoresists are patternwise exposed to 100-180-nm or 1-30-nm high-energy beams (e.g., F2 laser beams, Ar2 laser beams, soft x rays) and developed (after post-exposure baking).

IT 666258-16-8P 666258-18-0P 666258-19-1P  
666258-20-4P 666258-21-5P 666258-22-6P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(chemical amplified pos. photoresists showing high sensitivity to high-energy beams)

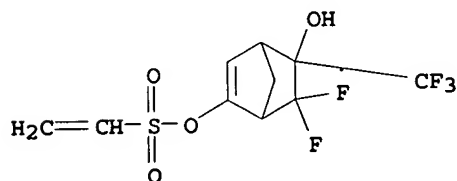
RN 666258-16-8 HCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with  $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]hept-5-ene-2-ethanol and 6,6-difluoro-5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-en-2-yl ethenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 666258-15-7

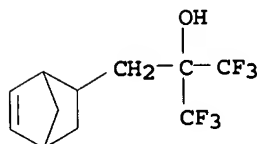
CMF C10 H9 F5 O4 S



CM 2

CRN 196314-61-1

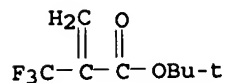
CMF C11 H12 F6 O



CM 3

CRN 105935-24-8

CMF C8 H11 F3 O2

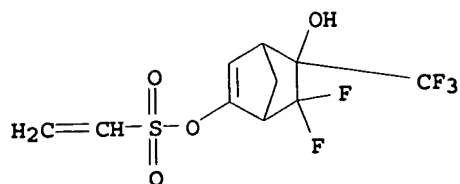


RN 666258-18-0 HCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1<sup>3,7</sup>]dec-2-yl ester, polymer with  $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]hept-5-ene-2-ethanol and 6,6-difluoro-5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-en-2-yl ethenesulfonate (9CI) (CA INDEX NAME)

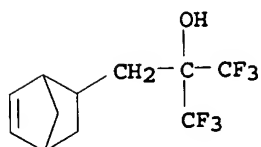
CM 1

CRN 666258-15-7  
CMF C10 H9 F5 O4 S



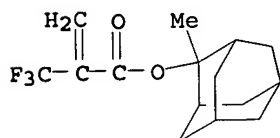
CM 2

CRN 196314-61-1  
CMF C11 H12 F6 O



CM 3

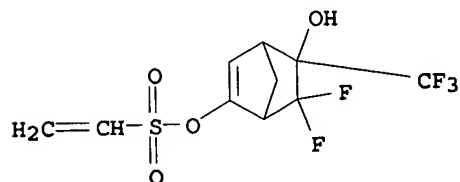
CRN 188739-86-8  
CMF C15 H19 F3 O2



RN 666258-19-1 HCAPLUS  
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 6,6-difluoro-5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-en-2-yl ethenesulfonate and 4-ethenyl- $\alpha,\alpha$ -bis(trifluoromethyl)benzenemethanol (9CI) (CA INDEX NAME)

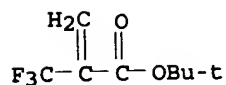
CM 1

CRN 666258-15-7  
CMF C10 H9 F5 O4 S



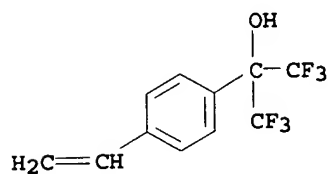
CM 2

CRN 105935-24-8  
CMF C8 H11 F3 O2



CM 3

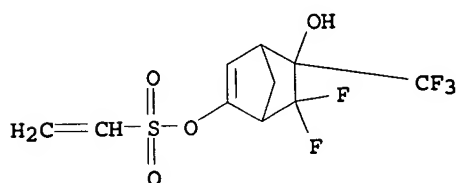
CRN 2386-82-5  
CMF C11 H8 F6 O



RN 666258-20-4 HCAPLUS  
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1<sup>3,7</sup>]dec-2-yl ester, polymer with 6,6-difluoro-5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-en-2-yl ethenesulfonate and 4-ethenyl- $\alpha,\alpha$ -bis(trifluoromethyl)benzenemethanol (9CI) (CA INDEX NAME)

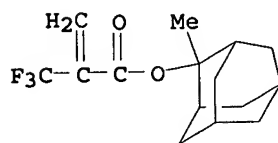
CM 1

CRN 666258-15-7  
CMF C10 H9 F5 O4 S



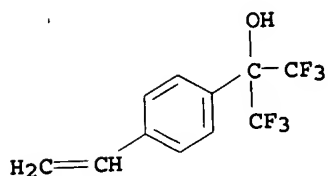
CM 2

CRN 188739-86-8  
CMF C15 H19 F3 O2



CM 3

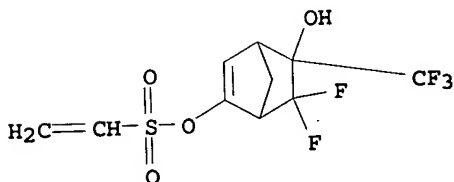
CRN 2386-82-5  
CMF C11 H8 F6 O



RN 666258-21-5 HCAPLUS  
CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester,  
polymer with 6,6-difluoro-5-hydroxy-5-  
(trifluoromethyl)bicyclo[2.2.1]hept-2-en-2-yl ethenesulfonate and  
5-ethenyl- $\alpha,\alpha,\alpha',\alpha'$ -  
tetrakis(trifluoromethyl)-1,3-benzenedimethanol (9CI) (CA INDEX  
NAME)

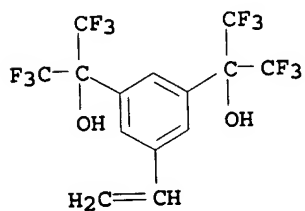
CM 1

CRN 666258-15-7  
CMF C10 H9 F5 O4 S



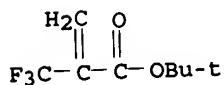
CM 2

CRN 568587-26-8  
CMF C14 H8 F12 O2



CM 3

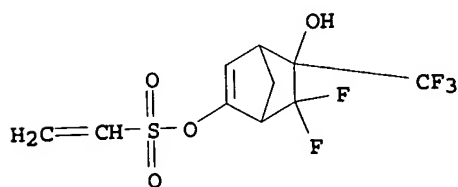
CRN 105935-24-8  
CMF C8 H11 F3 O2



RN 666258-22-6 HCAPLUS  
 CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1<sup>3,7</sup>]dec-2-yl ester, polymer with 6,6-difluoro-5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-en-2-yl ethenesulfonate and 5-ethenyl- $\alpha,\alpha,\alpha'$ , $\alpha$ '-tetrakis(trifluoromethyl)-1,3-benzenedimethanol (9CI) (CA INDEX NAME)

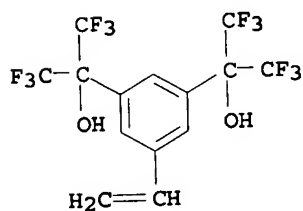
CM 1

CRN 666258-15-7  
 CMF C10 H9 F5 O4 S



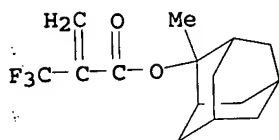
CM 2

CRN 568587-26-8  
 CMF C14 H8 F12 O2



CM 3

CRN 188739-86-8  
 CMF C15 H19 F3 O2



IC ICM C08F028-02  
 ICS C08F212-14; C08F220-22; C08F232-00; G03F007-039; H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38  
 ST chem amplified pos photoresist vinylsulfonate fluoropolymer; pattern formation pos photoresist chem amplified  
 IT Photolithography  
 Positive photoresists

- (UV; chemical amplified pos. photoresists showing high sensitivity to high-energy beams)
- IT Fluoropolymers, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(chemical amplified pos. photoresists showing high sensitivity to high-energy beams)
- IT X-ray resists  
(pos.-working, soft x ray; chemical amplified pos. photoresists showing high sensitivity to high-energy beams)
- IT X-ray lithography  
(soft x ray; chemical amplified pos. photoresists showing high sensitivity to high-energy beams)
- IT 666258-16-8P 666258-18-0P 666258-19-1P  
666258-20-4P 666258-21-5P 666258-22-6P  
666258-24-8P 666258-26-0P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(chemical amplified pos. photoresists showing high sensitivity to high-energy beams)

L90 ANSWER 8 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:1007889 HCAPLUS

DOCUMENT NUMBER: 140:50326

TITLE: Positive resist  
composition containing specific multi functional epoxy compound for F2 excimer laser lithography

INVENTOR(S): Toishi, Kouji; Miya, Yoshiko; Uetani, Yasunori

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 20 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE      |
|---------------|------|----------|-----------------|-----------|
| US 2003236351 | A1   | 20031225 | US 2003-404671  | 2003 0402 |

|               |    |          |               |           |
|---------------|----|----------|---------------|-----------|
| JP 2004004703 | A2 | 20040108 | JP 2003-98932 | 2003 0402 |
|---------------|----|----------|---------------|-----------|

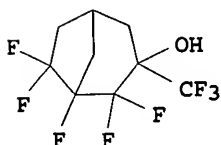
|                        |                |   |           |
|------------------------|----------------|---|-----------|
| PRIORITY APPLN. INFO.: | JP 2002-101003 | A | 2002 0403 |
|------------------------|----------------|---|-----------|

AB The present invention provides a pos. resist composition comprising a resin which itself is insol. or poorly soluble in an alkali aqueous solution but becomes soluble in an alkali aqueous solution by the action of an acid, an acid generator, and multifunctional epoxy compound, wherein the content of halogen atoms in the resin is  $\geq 40\%$ , at least one of structural units constituting the resin is a structural unit having an alicyclic hydrocarbon skeleton, and the structural unit having an alicyclic hydrocarbon skeleton contains therein at least one group rendering the resin soluble in an alkali aqueous solution by the action of an acid, and at least one halogen atom. The composition is suitable for F2 excimer laser lithog. and provides good quality photoresist.

IT 637035-72-4DP, ethoxymethylated  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (resin; pos. resist composition)  
 RN 637035-72-4 HCAPLUS  
 CN Bicyclo[3.2.1]octan-3-ol, 1,2,2,7,7-pentafluoro-3-(trifluoromethyl)-, polymer with 1,2,2,7,7-pentafluoro-3-(trifluoromethyl)bicyclo[3.2.0]heptan-3-ol (9CI) (CA INDEX NAME)

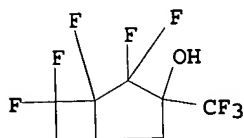
CM 1

CRN 637035-71-3  
 CMF C9 H8 F8 O



CM 2

CRN 637035-70-2  
 CMF C8 H6 F8 O



IC ICM C08F008-00  
 INCL 525107000; 525523000; 525539000; 525416000  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 35  
 ST pos resist compn  
 IT Photoresists  
 (pos. resist composition)  
 IT 112047-48-0  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (multi functional epoxy compound; pos. resist composition)  
 IT 637035-72-4DP, ethoxymethylated  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (resin; pos. resist composition)

L90 ANSWER 9 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2003:853313 HCAPLUS  
 DOCUMENT NUMBER: 139:343478  
 TITLE: Positive-working photosensitive compositions containing aromatic fluorinated sulfonium compounds  
 INVENTOR(S): Kodama, Kunihiro  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 43 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| JP 2003307838 | A2   | 20031031 | JP 2002-112256  | 2002<br>0415 |

PRIORITY APPLN. INFO.: JP 2002-112256  
 2002  
 0415

AB The pos.-working resists, suitable for irradiation with far-UV, contain (A1) ionic compds. which generate aromatic sulfonic acids substituted with  $\geq 1$  F and/or  $\geq 1$  F-containing group upon irradiation with actinic ray or radiation, (A2) nonionic compds. which generate acids upon irradiation with actinic ray or radiation, (B) resins having monocyclic or polycyclic alicyclic hydrocarbon structure which are decomposed by acids to show increased solubility in an alkaline developer, and optionally (C) low-mol.-weight dissoln. inhibitor compds. having acid-decomposable group with mol. weight  $\leq 3000$  which show increased solubility in an alkaline developer by acids. The compns. show small line edge roughness.

IT 543698-35-7 543698-52-8

RL: CAT (Catalyst use); USES (Uses)

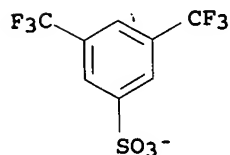
(pos.-working resist compns. containing aromatic fluorinated sulfonium compds. and nonionic acid generators with small line edge roughness)

RN 543698-35-7 HCAPLUS

CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

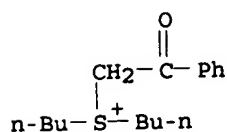
CM 1

CRN 213740-84-2  
 CMF C8 H3 F6 O3 S



CM 2

CRN 19023-62-2  
 CMF C16 H25 O S



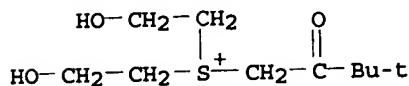
RN 543698-52-8 HCAPLUS



CN Sulfonium, (3,3-dimethyl-2-oxobutyl)bis(2-hydroxyethyl)-, salt  
with 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
INDEX NAME)

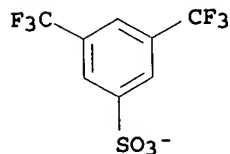
CM 1

CRN 543698-51-7  
CMF C10 H21 O3 S



CM 2

CRN 213740-84-2  
CMF C8 H3 F6 O3 S



IC ICM G03F007-004  
ICS C08F220-18; C08F220-26; C08F232-04; G03F007-039; H01L021-027  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
ST arom fluorine contg sulfonium disulfone photoacid  
generator pos photoresist  
IT Positive photoresists  
(UV; pos.-working resist compns. containing  
aromatic F-containing sulfonium compds. and nonionic acid generators  
for small line edge roughness)  
IT Resists  
(pos.-working; pos.-working resist  
compns. containing aromatic F-containing sulfonium compds. and nonionic  
acid generators for small line edge roughness)  
IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl  
methacrylate copolymer  
RL: SPN (Synthetic preparation); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)  
(pos.-working resist compns. containing aromatic  
F-containing sulfonium compds. and nonionic acid generators for  
small line edge roughness)  
IT 10409-07-1 14159-45-6 41580-58-9 57212-70-1 124737-97-9  
133710-62-0 138529-81-4 138529-84-7 153698-46-5  
168697-66-3 210218-57-8 258341-98-9 307531-76-6  
389859-76-1 398457-16-4 415682-93-8 454471-05-7  
460740-33-4 474511-05-2 508182-57-8 508210-39-7  
524699-48-7 532982-95-9 537015-30-8 537015-31-9  
543698-35-7 543698-45-9 543698-46-0  
543698-52-8 617704-76-4 617704-77-5 617704-78-6  
617704-79-7  
RL: CAT (Catalyst use); USES (Uses)  
(pos.-working resist compns. containing aromatic  
fluorinated sulfonium compds. and nonionic acid  
generators with small line edge roughness)  
IT 289623-64-9P 312620-54-5P 359635-35-1P 366808-82-4P  
391232-36-3P 391613-77-7P 398140-43-7P 398140-45-9P

398140-57-3P 398140-59-5P 398140-68-6P 398140-69-7P  
 398140-77-7P 398140-80-2P 405509-19-5P 471257-28-0P  
 482609-97-2P 508210-04-6P 515876-73-0P 521303-15-1P  
 521303-16-2P 524699-47-6P 574735-94-7P 610300-92-0P  
 610300-96-4P 617704-75-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working resist compns. containing aromatic fluorinated sulfonium compds. and nonionic acid generators with small line edge roughness)

L90 ANSWER 10 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:818013 HCAPLUS

DOCUMENT NUMBER: 139:314471

TITLE: Chemically amplified **positive**-working **photoresist** composition

INVENTOR(S): Miya, Yoshiko; Toishi, Kouji; Hashimoto, Kazuhiko

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: U.S. Pat. Appl. Publ., 19 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE        |
|---------------|------|----------|-----------------|-------------|
| US 2003194639 | A1   | 20031016 | US 2003-366673  | 2003 0214   |
|               |      |          | <--             |             |
| US 6893792    | B2   | 20050517 |                 |             |
| JP 2004004561 | A2   | 20040108 | JP 2003-39501   | 2003 0218   |
|               |      |          | <--             |             |
|               |      |          | JP 2002-41245   | A 2002 0219 |
|               |      |          | <--             |             |
|               |      |          | JP 2002-101002  | A 2002 0403 |

OTHER SOURCE(S): MARPAT 139:314471

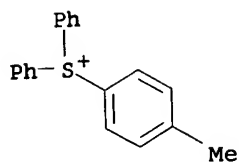
AB A **pos. resist** composition comprises a resin which itself is **insol.** or poorly soluble in an **alkali** aqueous solution but becomes soluble in an **alkali** aqueous solution by the action of an **acid**; and an **acid generator**, wherein the content of **halogen** atoms in the resin is  $\geq 40$  weight%, at least one of structural units constituting the resin is a structural unit having an **alicyclic** hydrocarbon skeleton, and the structural unit having an **alicyclic** hydrocarbon skeleton contains therein at least one group rendering the resin soluble in an **alkali** aqueous solution by the action of an **acid**, and at least one **halogen** atom.

IT 81416-37-7 127820-38-6 177034-80-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (chemical amplified **pos.-working photoresist** composition)

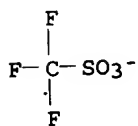
RN 81416-37-7 HCAPLUS

CN Sulfonium, (4-methylphenyl)diphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

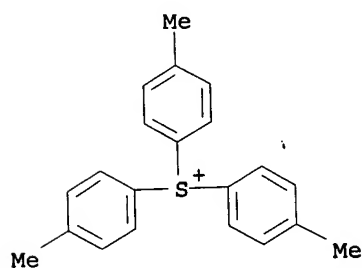
CRN 47045-31-8  
CMF C19 H17 S

CM 2

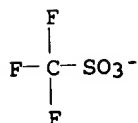
CRN 37181-39-8  
CMF C F3 O3 S

RN 127820-38-6 HCAPLUS  
CN Sulfonium, tris(4-methylphenyl)-, salt with  
trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47197-43-3  
CMF C21 H21 S

CM 2

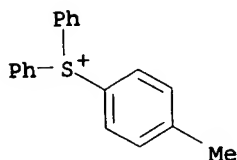
CRN 37181-39-8  
CMF C F3 O3 S

RN 177034-80-9 HCAPLUS  
CN Sulfonium, (4-methylphenyl)diphenyl-, salt with

1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic  
acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47045-31-8  
CMF C19 H17 S



CM 2

CRN 45298-90-6  
CMF C8 F17 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>7</sub>-CF<sub>3</sub>

IC ICM G03F007-039  
ICS G03F007-004; C23F001-00  
INCL 430270100; 430921000; 430925000; 430914000  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
ST chem amplified **pos photoresist** fluoropolymer  
**alicyclic**  
IT Fluoropolymers, preparation  
RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
TEM (Technical or engineered material use); PREP (Preparation);  
USES (Uses)  
(**alicyclic**; chemical amplified **pos.-working**  
**photoresist** composition)  
IT **Positive photoresists**  
(chemical amplified **pos.-working photoresist**  
composition)  
IT 3188-13-4DP, Ethoxymethyl **chloride**, reaction products  
with hydroxy-containing polymers 448220-56-2DP, alkoxyalkylated  
RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
TEM (Technical or engineered material use); PREP (Preparation);  
USES (Uses)  
(chemical amplified **pos.-working photoresist**  
composition)  
IT 2052-49-5, Tetrabutylammonium hydroxide 24544-04-5,  
2,6-Diisopropylaniline 81416-37-7 127820-38-6  
177034-80-9  
RL: MOA (Modifier or additive use); USES (Uses)  
(chemical amplified **pos.-working photoresist**  
composition)  
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L90 ANSWER 11 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:568820 HCAPLUS  
DOCUMENT NUMBER: 139:140959  
TITLE: Chemically amplified **positive**  
**photoresist** compositions with good  
developability and post-exposure-delay

INVENTOR(S): stability  
Nakao, Hajime; Kawabe, Yasumasa; Fujimori,  
Toru  
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 76 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO.     | DATE              |
|---------------|------|----------|---------------------|-------------------|
| JP 2003207885 | A2   | 20030725 | JP 2002-3899        | 2002<br>0110      |
| US 2003224285 | A1   | 20031204 | US 2003-338737      | 2003<br>0109      |
|               |      |          | <--<br>JP 2002-3899 | A<br>2002<br>0110 |
|               |      |          | <--<br>JP 2002-3900 | A<br>2002<br>0110 |

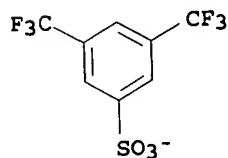
AB The compns. comprise (A) compds. generating aromatic sulfonic acids containing F by irradiation, (B) resins having mono- or poly- alicyclic hydrocarbon structures, which increase their alkali solubility by acid decomposition, and (C) compds. having  $\geq 3$  OH or substituted OH and  $\geq 1$  ring structures.

IT 543698-40-4  
RL: CAT (Catalyst use); USES (Uses)  
(photoacid generator; chemical amplified pos.  
photoresists with good developability and  
post-exposure-delay stability)

RN 543698-40-4 HCAPLUS  
CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
INDEX NAME)

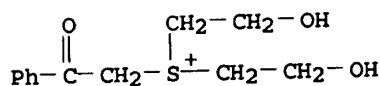
CM 1

CRN 213740-84-2  
CMF C8 H3 F6 O3 S



CM 2

CRN 201294-87-3  
CMF C12 H17 O3 S



- IC ICM G03F007-004  
ICS C07C025-02; C07C381-12; G03F007-039; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38
- ST **pos photoresist** chem amplification  
developability; photoacid generator **fluorine sulfonic**  
acid photoresist; cyclic sugar photoresist post exposure stability
- IT **Positive photoresists**  
(chemical amplified **pos. photoresists** with  
good developability and post-exposure-delay stability)
- IT 3744-08-9P, Triphenylsulfonium **iodide** 19158-66-8P  
270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
(Preparation); RACT (Reactant or reagent)
- (chemical amplified **pos. photoresists** with  
good developability and post-exposure-delay stability)
- IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl  
methacrylate copolymer 288303-55-9P 391232-36-3P  
391613-77-7P 398140-36-8P 398140-40-4P 398140-43-7P  
398140-45-9P 398140-47-1P 398140-48-2P 398140-50-6P  
398140-52-8P 398140-57-3P 398140-59-5P 398140-60-8P  
398140-64-2P 398140-69-7P 398140-71-1P 398140-72-2P  
398140-73-3P 398140-74-4P 398140-77-7P 398140-78-8P  
398140-79-9P 398140-80-2P 405509-18-4P 405509-19-5P  
405509-25-3P 471257-28-0P 482609-97-2P 500149-64-4P  
508210-04-6P 515876-73-0P 521303-15-1P 521303-16-2P  
524699-47-6P 566164-05-4P 566164-06-5P 566164-08-7P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)
- (chemical amplified **pos. photoresists** with  
good developability and post-exposure-delay stability)
- IT 70-11-1, Phenacyl **bromide** 71-43-2, Benzene, reactions  
110-01-0, Tetrahydrothiophene 945-51-7, Diphenylsulfoxide  
2049-95-8, tert-Amylbenzene 4270-70-6, Triphenylsulfonium  
**chloride**  
RL: RCT (Reactant); RACT (Reactant or reagent)
- (chemical amplified **pos. photoresists** with  
good developability and post-exposure-delay stability)
- IT 270563-92-3 279244-39-2 279244-43-8 279244-45-0  
335199-99-0 389859-76-1 398457-16-4 454471-05-7  
474511-05-2 475642-50-3 508182-57-8 508182-59-0  
524699-48-7 524699-49-8 528605-44-9 537015-31-9  
543698-39-1 543698-40-4 543698-43-7 543698-44-8  
543700-40-9 565469-39-8 565469-40-1 565469-43-4  
565469-44-5 566164-34-9  
RL: CAT (Catalyst use); USES (Uses)
- (photoacid generator; chemical amplified **pos.**  
**photoresists** with good developability and  
post-exposure-delay stability)
- IT 153698-46-5P 258341-98-9P 270563-96-7P 389859-75-0P  
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP  
(Preparation); USES (Uses)
- (photoacid generator; chemical amplified **pos.**  
**photoresists** with good developability and  
post-exposure-delay stability)
- IT 4064-06-6 6286-43-7, 1,2,3-Cyclohexanetriol 7757-38-2  
18422-53-2 18467-77-1 33159-45-4 81225-67-4 253328-56-2  
300573-19-7 350255-13-9 566164-09-8 566164-10-1  
566164-11-2 566164-12-3 566164-13-4 566164-14-5

566164-15-6 566164-16-7 566164-17-8 566164-18-9  
 566164-19-0 566164-20-3 566164-21-4 566164-22-5  
 566164-23-6 566164-24-7 566164-25-8 566164-26-9  
 566164-27-0 566164-28-1 566164-29-2 566164-30-5  
 566164-31-6 566164-32-7 566169-77-5 566169-78-6  
 566169-79-7 566169-80-0 566169-81-1

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(sugar; chemical amplified pos. photoresists  
 with good developability and post-exposure-delay stability)

L90 ANSWER 12 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:471003 HCAPLUS

DOCUMENT NUMBER: 139:44226

TITLE: Positive-working photoresist  
 composition containing specific acid generator

INVENTOR(S): Kodama, Kunihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 62 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| JP 2003173023 | A2   | 20030620 | JP 2001-371498  | 2001<br>1205 |

PRIORITY APPLN. INFO.:

<--  
 JP 2001-371498  
 2001  
 1205

AB The title composition contains an actinic ray- or radiation-sensitive acid generator and a resin which has an alicyclic group and increases the solubility in an alkali developer reacting with an acid, wherein the acid generator is a phenacylsulfonium salt or a sulfonium salt without aromatic ring and has an aromatic sulfonate group having F or f-containing substituent. The composition provides high resolution pattern, wide defocus latitude, and the good pattern profile.

IT 506445-12-1P 543698-35-7P 543698-36-8P  
 543698-40-4P 543698-52-8P 543698-54-0P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (acid generator)

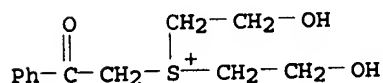
RN 506445-12-1 HCAPLUS

CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

CM 1

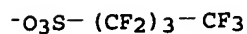
CRN 201294-87-3

CMF C12 H17 O3 S



CM 2

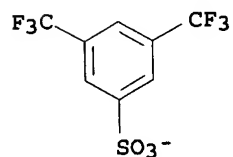
CRN 45187-15-3  
CMF C4 F9 O3 S



RN 543698-35-7 HCAPLUS  
CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with  
3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
INDEX NAME)

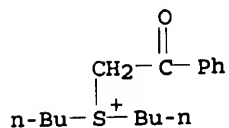
CM 1

CRN 213740-84-2  
CMF C8 H3 F6 O3 S



CM 2

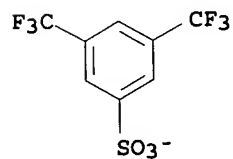
CRN 19023-62-2  
CMF C16 H25 O S



RN 543698-36-8 HCAPLUS  
CN Sulfonium, dimethyl(2-oxo-2-phenylethyl)-, salt with  
3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
INDEX NAME)

CM 1

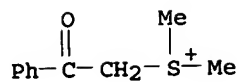
CRN 213740-84-2  
CMF C8 H3 F6 O3 S



CM 2

CRN 19023-61-1  
CMF C10 H13 O S

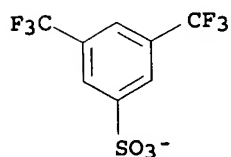




RN 543698-40-4 HCAPLUS  
 CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
 INDEX NAME)

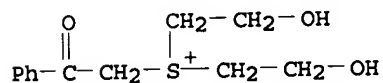
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CRN 213740-84-2  
 CMF C8 H3 F6 O3 S



CM 2

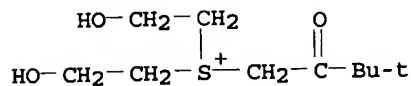
CRN 201294-87-3  
 CMF C12 H17 O3 S



RN 543698-52-8 HCAPLUS  
 CN Sulfonium, (3,3-dimethyl-2-oxobutyl)bis(2-hydroxyethyl)-, salt  
 with 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
 INDEX NAME)

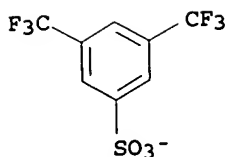
CM 1

CRN 543698-51-7  
 CMF C10 H21 O3 S



CM 2

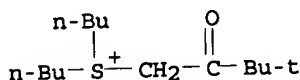
CRN 213740-84-2  
 CMF C8 H3 F6 O3 S



RN 543698-54-0 HCAPLUS  
 CN Sulfonium, dibutyl(3,3-dimethyl-2-oxobutyl)-, salt with  
 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
 INDEX NAME)

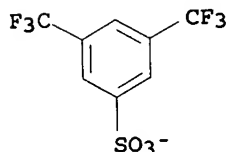
CM 1

CRN 543698-53-9  
 CMF C14 H29 O S



CM 2

CRN 213740-84-2  
 CMF C8 H3 F6 O3 S



IC ICM G03F007-004  
 ICS H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 ST pos photoresist compn generator  
 IT Positive photoresists  
 (pos.-working photoresist composition)  
 IT 70-11-1, Phenacyl bromide 110-01-0,  
 Tetrahydrothiophene 27644-18-4, Propanoyl bromide,  
 2,2-dimethyl 543698-33-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (acid generator)  
 IT 19158-66-8P, Thiophenium, tetrahydro-1-phenacyl-, bromide  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (acid generator)  
 IT 66003-78-9P, Triphenylsulfonium triflate 133710-62-0P  
 138529-81-4P 177034-80-9P 227199-92-0P 241806-75-7P  
 258872-05-8P 284474-28-8P 301664-71-1P 301664-72-2P  
 347193-29-7P 365971-84-2P 391232-40-9P 398141-21-4P  
 454471-05-7P 474511-05-2P 506445-12-1P 508210-39-7P  
 543698-34-6P 543698-35-7P 543698-36-8P  
 543698-37-9P 543698-39-1P 543698-40-4P 543698-41-5P  
 543698-42-6P 543698-43-7P 543698-44-8P 543698-45-9P  
 543698-46-0P 543698-48-2P 543698-49-3P 543698-50-6P  
 543698-52-8P 543698-54-0P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(acid generator)

L90 ANSWER 13 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:471002 HCAPLUS

DOCUMENT NUMBER: 139:44225

TITLE: Chemically amplified **positive photoresists** of high resolution and allowing wide defocus latitude

INVENTOR(S): Kodama, Kunihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 80 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| JP 2003173022 | A2   | 20030620 | JP 2001-371497  | 2001<br>1205 |

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PRIORITY APPLN. INFO.: JP 2001-371497

2001  
1205

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AB The photoresists comprise (A) radiation-sensitive acid generators including (A1) F-containing aromatic sulfonic acid precursors and (A2) phenacylsulfonium and/or alkylsulfonium salts and (B) acid-labile alicyclic hydrocarbon resins increasing solubility in alkalis by acid action. The photoresists suppress sidelobes on patterning through halftone phase-shift masks.

IT 474510-73-1 506445-12-1 543698-35-7

543698-40-4 543698-52-8

RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)

(photoacid generators; **pos. photoresists**

containing sp. two kinds of acid generators and allowing wide defocus latitude)

RN 474510-73-1 HCAPLUS

CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

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CRN 45187-15-3

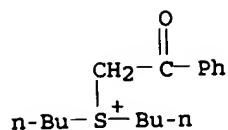
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-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>3</sub>-CF<sub>3</sub>

CM 2

CRN 19023-62-2

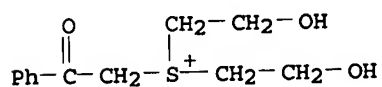
CMF C16 H25 O S



RN 506445-12-1 HCAPLUS  
 CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefluorobutanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

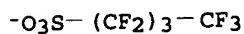
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CRN 201294-87-3  
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CM 2

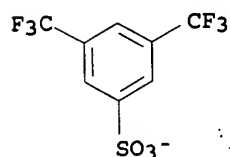
CRN 45187-15-3  
 CMF C4 F9 O3 S



RN 543698-35-7 HCAPLUS  
 CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with  
 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
 INDEX NAME)

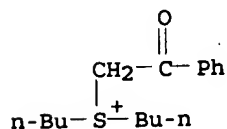
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CRN 213740-84-2  
 CMF C8 H3 F6 O3 S



CM 2

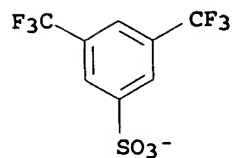
CRN 19023-62-2  
 CMF C16 H25 O S



RN 543698-40-4 HCAPLUS  
 CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
 INDEX NAME)

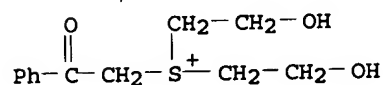
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CRN 213740-84-2  
 CMF C8 H3 F6 O3 S



CM 2

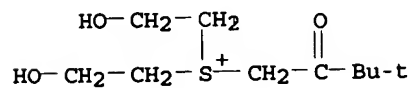
CRN 201294-87-3  
 CMF C12 H17 O3 S



RN 543698-52-8 HCAPLUS  
 CN Sulfonium, (3,3-dimethyl-2-oxobutyl)bis(2-hydroxyethyl)-, salt  
 with 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA  
 INDEX NAME)

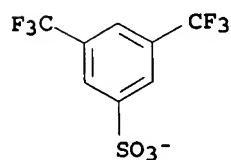
CM 1

CRN 543698-51-7  
 CMF C10 H21 O3 S



CM 2

CRN 213740-84-2  
 CMF C8 H3 F6 O3 S



IC ICM G03F007-004  
 ICS C08F220-18; C08F220-28; C08F222-00; C08F232-00; G03F007-039;  
 H01L021-027

- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 38
- ST photoresist acid generator **fluoro** substituted sulfonate;  
phenacylsulfonium alkylsulfonium salt photoresist acid generator
- IT **Positive photoresists**  
(chemical amplified; **pos. photoresists** containing  
sp. two kinds of acid generators and allowing wide defocus  
latitude)
- IT Catalysts  
(photochem., photoacid generators; **pos.**  
**photoresists** containing sp. two kinds of acid generators  
and allowing wide defocus latitude)
- IT 153698-46-5P 301664-71-1P 301664-72-2P 398141-19-0P  
543698-33-5P  
RL: CAT (Catalyst use); IMF (Industrial manufacture); TEM  
(Technical or engineered material use); PREP (Preparation); USES  
(Uses)  
(photoacid generators; **pos. photoresists**  
containing sp. two kinds of acid generators and allowing wide  
defocus latitude)
- IT 258341-98-9, Di(4-tert-amylphenyl)iodonium  
pentafluorobenzenesulfonate 270563-92-3 270563-96-7  
279244-39-2 279244-50-7 389859-75-0 389859-76-1  
398141-23-6 398457-16-4 454471-05-7 454471-09-1  
454471-15-9 474510-73-1 474510-79-7 475642-50-3  
506445-12-1 508182-57-8 508182-59-0 508210-39-7  
524699-48-7 524699-49-8 528605-44-9 537015-31-9  
543698-35-7 543698-39-1 543698-40-4  
543698-43-7 543698-45-9 543698-52-8 543700-40-9  
543700-43-2 543700-45-4  
RL: CAT (Catalyst use); TEM (Technical or engineered material  
use); USES (Uses)  
(photoacid generators; **pos. photoresists**  
containing sp. two kinds of acid generators and allowing wide  
defocus latitude)
- IT 19158-66-8P 270564-02-8P, Tetramethylammonium  
pentafluorobenzenesulfonate 279218-84-7P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP  
(Preparation); RACT (Reactant or reagent)  
(**pos. photoresists** containing sp. two kinds of  
acid generators and allowing wide defocus latitude)
- IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl  
methacrylate copolymer 391232-36-3P 398140-57-3P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)  
(**pos. photoresists** containing sp. two kinds of  
acid generators and allowing wide defocus latitude)
- IT 70-11-1, Phenacyl bromide 75-59-2, Tetramethylammonium  
hydroxide 110-01-0, Tetrahydrothiophene 832-53-1,  
Pentafluorobenzenesulfonyl chloride 945-51-7,  
Diphenylsulfoxide 2049-95-8, tert-Amylbenzene 3744-08-9,  
Triphenylsulfonium iodide 29420-49-3, Potassium  
perfluorobutanesulfonate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(**pos. photoresists** containing sp. two kinds of  
acid generators and allowing wide defocus latitude)
- IT 288303-55-9 391613-77-7 398140-36-8 398140-40-4  
398140-43-7 398140-45-9 398140-47-1 398140-48-2  
398140-50-6 398140-52-8 398140-59-5 398140-60-8  
398140-62-0 398140-64-2 398140-65-3 398140-68-6  
398140-69-7 398140-71-1 398140-72-2 398140-73-3  
398140-74-4 398140-76-6 398140-77-7 398140-78-8  
398140-79-9 398140-80-2 405509-18-4 405509-19-5  
405509-25-3 471257-28-0 482609-97-2 508210-04-6  
515876-73-0 521303-15-1 521303-16-2 524699-47-6

RL: TEM (Technical or engineered material use); USES (Uses)  
(pos. photoresists containing sp. two kinds of  
acid generators and allowing wide defocus latitude)

L90 ANSWER 14 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:282248 HCAPLUS  
DOCUMENT NUMBER: 138:294918  
TITLE: Positive photosensitive composition  
INVENTOR(S): Kodama, Kunihiko  
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
SOURCE: Eur. Pat. Appl., 85 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE         |
|------------|------|----------|-----------------|--------------|
| EP 1300727 | A2   | 20030409 | EP 2002-22234   | 2002<br>1002 |

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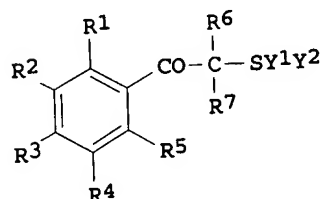
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|---|----|----------|----------------|--------------|
| EP 1300727  | A3 | 20031008 |                |              |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,<br>MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,<br>EE, SK |    |          |                |              |
| JP 2003114522   | A2 | 20030418 | JP 2001-307537 | 2001<br>1003 |
| US 2003148206   | A1 | 20030807 | US 2002-261655 | 2002<br>1002 |

&lt;--

|                        |    |          |                |              |
|------------------------|----|----------|----------------|--------------|
| US 6830867             | B2 | 20041214 | JP 2001-307537 | A            |
| PRIORITY APPLN. INFO.: |    |          |                | 2001<br>1003 |

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OTHER SOURCE(S): MARPAT 138:294918  
GI



I

AB A pos. photosensitive composition containing (A) an acid generator capable of generating an acid by irradiation with actinic ray or radiation and having a structure I (R1-5 = H, nitro group, halogen, alkyl, alkoxy, etc.; at least two of R1-5 may combine with each other to form a cyclic structure; R6,7 = H, cyano group, alkyl, aryl; Y1, 2 = alkyl, alkenyl; X- = non-nucleophilic anion) and (B) a resin having a monocyclic or polycyclic alicyclic hydrocarbon structure and being decomposed by the action of an acid to increase solubility in an alkali developer. The present invention relates to a pos. photosensitive composition used in a manufacturing process of semiconductors, such as ICs, in a process of producing circuit

boards for liquid crystal display and thermal head, and in other photofabrication processes. The invention is concerned with a pos. photosensitive composition suitable for using far UV radiation having a wavelength of not longer than 250 nm or the like as an exposure light source.

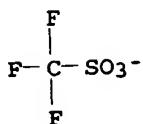
IT 120976-85-4P 474510-73-1P 506445-09-6P  
 506445-12-1P 506445-13-2P 506445-14-3P  
 506445-16-5P 506445-17-6P 506445-19-8P  
 506445-20-1P 506445-21-2P 506445-23-4P  
 506445-24-5P 506445-26-7P 506445-28-9P  
 506445-30-3P 506445-32-5P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (acid generator for pos. photosensitive composition for photoresist)

RN 120976-85-4 HCAPLUS  
 CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

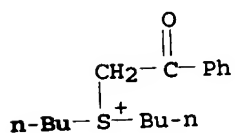
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CRN 37181-39-8  
 CMF C F3 O3 S



CM 2

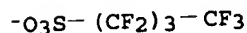
CRN 19023-62-2  
 CMF C16 H25 O S



RN 474510-73-1 HCAPLUS  
 CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butananesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

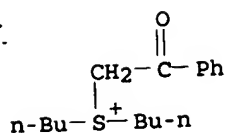
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 CMF C4 F9 O3 S



CM 2

CRN 19023-62-2  
 CMF C16 H25 O S

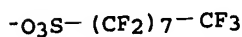




RN 506445-09-6 HCAPLUS  
 CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with  
 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic  
 acid (1:1) (9CI) (CA INDEX NAME)

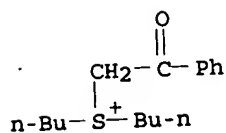
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CRN 45298-90-6  
 CMF C8 F17 O3 S



CM 2

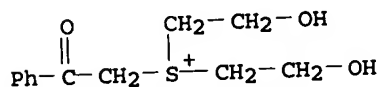
CRN 19023-62-2  
 CMF C16 H25 O S



RN 506445-12-1 HCAPLUS  
 CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

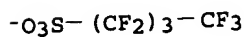
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CRN 201294-87-3  
 CMF C12 H17 O3 S



CM 2

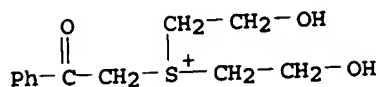
CRN 45187-15-3  
 CMF C4 F9 O3 S



RN 506445-13-2 HCAPLUS  
 CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
 trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

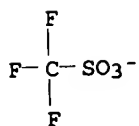
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CMF C12 H17 O3 S



CM 2

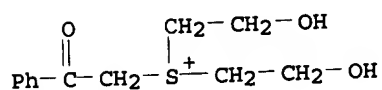
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CMF C F3 O3 S



RN 506445-14-3 HCAPLUS  
CN Sulfonium, bis(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic  
acid (1:1) (9CI) (CA INDEX NAME)

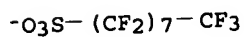
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CMF C12 H17 O3 S



CM 2

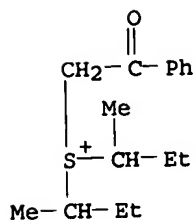
CRN 45298-90-6  
CMF C8 F17 O3 S



RN 506445-16-5 HCAPLUS  
CN Sulfonium, bis(1-methylpropyl)(2-oxo-2-phenylethyl)-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefluoronic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

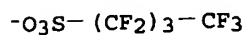
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CMF C16 H25 O S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

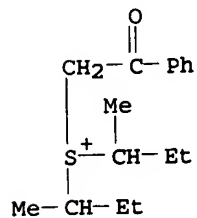


RN 506445-17-6 HCAPLUS  
 CN Sulfonium, bis(1-methylpropyl)(2-oxo-2-phenylethyl)-, salt with  
 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic  
 acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 506445-15-4

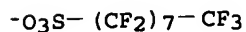
CMF C16 H25 O S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

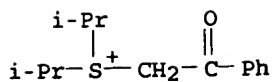


RN 506445-19-8 HCAPLUS  
 CN Sulfonium, bis(1-methylethyl)(2-oxo-2-phenylethyl)-, salt with  
 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

CM 1

CRN 506445-18-7

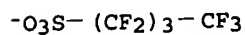
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CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



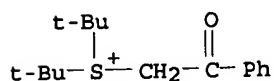
RN 506445-20-1 HCAPLUS

CN Sulfonium, bis(1,1-dimethylethyl)(2-oxo-2-phenylethyl)-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 153148-37-9

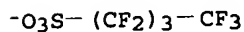
CMF C16 H25 O S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



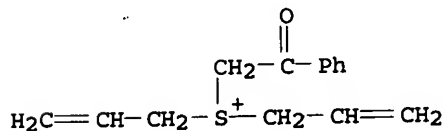
RN 506445-21-2 HCAPLUS

CN Sulfonium, (2-oxo-2-phenylethyl)di-2-propenyl-, salt with  
trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 153126-87-5

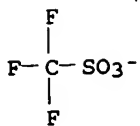
CMF C14 H17 O S



CM 2

CRN 37181-39-8

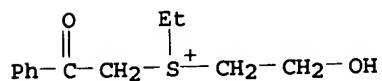
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RN 506445-23-4 HCAPLUS  
 CN Sulfonium, ethyl(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

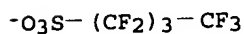
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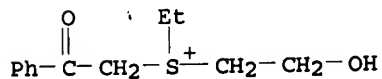
CRN 45187-15-3  
 CMF C4 F9 O3 S



RN 506445-24-5 HCAPLUS  
 CN Sulfonium, ethyl(2-hydroxyethyl)(2-oxo-2-phenylethyl)-, salt with  
 trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

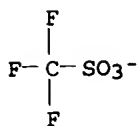
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CM 2

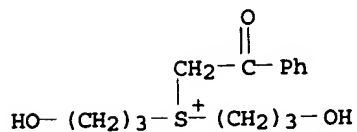
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 CMF C F3 O3 S



RN 506445-26-7 HCAPLUS  
 CN Sulfonium, bis(3-hydroxypropyl)(2-oxo-2-phenylethyl)-, salt with  
 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

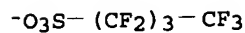
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CM 2

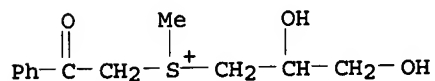
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 CMF C4 F9 O3 S



RN 506445-28-9 HCAPLUS  
 CN Sulfonium, (2,3-dihydroxypropyl)methyl(2-oxo-2-phenylethyl)-, salt  
 with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1)  
 (9CI) (CA INDEX NAME)

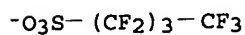
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CRN 506445-27-8  
 CMF C12 H17 O3 S



CM 2

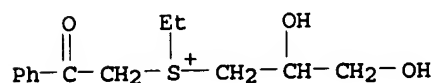
CRN 45187-15-3  
 CMF C4 F9 O3 S



RN 506445-30-3 HCAPLUS  
 CN Sulfonium, (2,3-dihydroxypropyl)ethyl(2-oxo-2-phenylethyl)-, salt  
 with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1)  
 (9CI) (CA INDEX NAME)

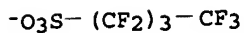
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CM 2

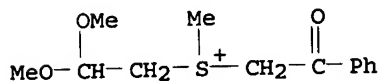
CRN 45187-15-3  
CMF C4 F9 O3 S



RN 506445-32-5 HCAPLUS  
CN Sulfonium, (2,2-dimethoxyethyl)methyl(2-oxo-2-phenylethyl)-, salt  
with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanefulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

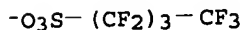
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CRN 506445-31-4  
CMF C13 H19 O3 S



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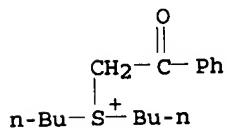
CRN 45187-15-3  
CMF C4 F9 O3 S



IT 24806-61-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(preparation of acid generator for pos. photosensitive composition)  
RN 24806-61-9 HCAPLUS  
CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, tetrafluoroborate(1-)  
(9CI) (CA INDEX NAME)

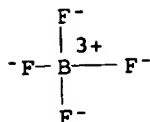
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CRN 19023-62-2  
CMF C16 H25 O S



CM 2

CRN 14874-70-5  
CMF B F4  
CCI CCS



IC ICM G03F007-004  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 35, 38  
 ST pos photosensitive compn photoresist  
 IT Photoresists  
 (pos. photosensitive composition for)  
 IT 120976-85-4P 474510-73-1P 506445-09-6P  
 506445-10-9P 506445-11-0P 506445-12-1P  
 506445-13-2P 506445-14-3P 506445-16-5P  
 506445-17-6P 506445-19-8P 506445-20-1P  
 506445-21-2P 506445-23-4P 506445-24-5P  
 506445-26-7P 506445-28-9P 506445-30-3P  
 506445-32-5P 506445-34-7P 506445-36-9P  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (acid generator for pos. photosensitive composition for photoresist)  
 IT 70-11-1, Phenacyl bromide 544-40-1, Di-n-butylsulfide  
 29420-49-3, Potassium nonafluorobutanesulfonate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of acid generator for pos. photosensitive composition)  
 IT 24806-61-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of acid generator for pos. photosensitive composition)

L90 ANSWER 15 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:868986 HCAPLUS  
 DOCUMENT NUMBER: 137:370796  
 TITLE: Radiation-sensitive polysiloxane resin composition  
 INVENTOR(S): Iwasawa, Haruo; Hayashi, Akihiro; Shimokawa, Tsutomu; Yamamoto, Masafumi  
 PATENT ASSIGNEE(S): JSR Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 155 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE      |
|---------------|------|----------|-----------------|-----------|
| WO 2002090423 | A1   | 20021114 | WO 2002-JP4333  | 2002 0430 |

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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,

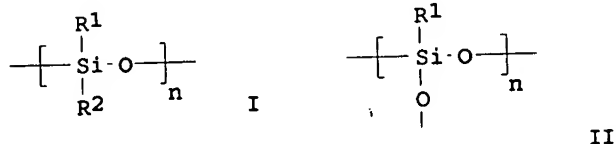


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 CN 1505651 A 20040616 CN 2002-809212 2002  
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 WO 2002-JP4333 W 2002  
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## PRIORITY APPLN. INFO.:

OTHER SOURCE(S):  
 GI

MARPAT 137:370796



AB A radiation-sensitive resin composition excellent in sensitivity and resolution, is composed of (A) a polysiloxane resin exhibiting high transparency even at a wavelength  $\leq 193$  nm (particularly 157 nm), excellent dry etching resistance,  $M_w = 500 - 1,000,000$ , and  $PDI \leq 1.5$  which comprises units represented by the I and/or II and acid-dissociable groups (wherein R1 is a fluorinated or fluoroalkylated monovalent aromatic group or a fluorinated or fluoroalkylated monovalent alicyclic group; and R2 is a monovalent aromatic group described above, a monovalent alicyclic group described above, H, halogeno, a monovalent hydrocarbon group, haloalkyl, or amino), and (B) a radiation-sensitive acid generator. Thus, 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-(triethoxysilyl)-, 1,1-dimethylethyl ester, 2-(2,2-ditrifluoromethylethyl)-norbornanyltrietoxysilane, and pentafluorophenyltriethoxysilane synthesized from pentafluorobenzene and tetraethoxysilane were polymerized to obtain a polysiloxane with transparent ratio at 157 nm 57.0 %, Tg 103°.

IT 144317-44-2, Triphenylsulfonium nonafluoro-n-  
butanesulfonate 194999-82-1 345580-99-6, uses  
474516-38-6 474516-46-6 474516-50-2  
RL: CAT (Catalyst use); USES (Uses)  
(radiation-sensitive polysiloxane resin composition)  
RN 144317-44-2 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-  
butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

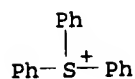
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CRN 45187-15-3  
CMF C4 F9 O3 S

$-\text{O}_3\text{S}- (\text{CF}_2)_3-\text{CF}_3$

CM 2

CRN 18393-55-0  
CMF C18 H15 S



RN 194999-82-1 HCAPLUS  
CN Iodonium, diphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-  
butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

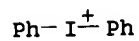
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CRN 45187-15-3  
CMF C4 F9 O3 S

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CM 2

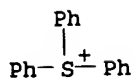
CRN 10182-84-0  
CMF C12 H10 I



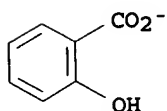
RN 345580-99-6 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 2-hydroxybenzoic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 18393-55-0  
CMF C18 H15 S

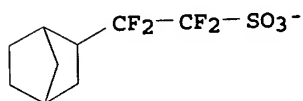


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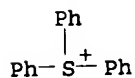
CRN 63-36-5  
CMF C7 H5 O3

RN 474516-38-6 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with  $\alpha,\alpha,\beta,\beta$ -tetrafluorobicyclo[2.2.1]heptane-2-ethanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

CM 1

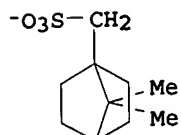
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CMF C9 H11 F4 O3 S

CM 2

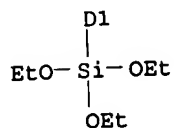
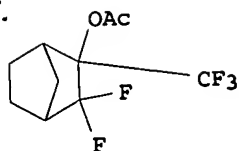
CRN 18393-55-0  
CMF C18 H15 S

RN 474516-46-6 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with 7,7-dimethylbicyclo[2.2.1]heptane-1-methanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

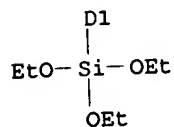
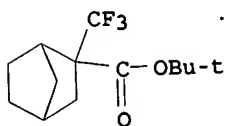
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CMF C10 H17 O3 S





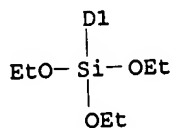
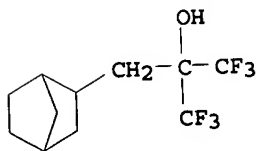
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CRN 474559-06-3  
 CMF C19 H33 F3 O5 Si  
 CCI IDS



CM 3

CRN 365546-74-3  
 CMF C17 H28 F6 O4 Si  
 CCI IDS

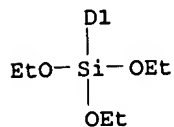
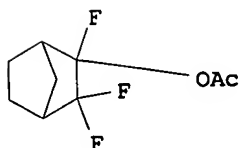


RN 474657-67-5 HCAPLUS  
 CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 5(or 6)-(triethoxysilyl)-  
 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 5(or  
 6)-(triethoxysilyl)- $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.

2.1]heptane-2-ethanol and 2,3,3-trifluoro-5(or  
6)-(triethoxysilyl)bicyclo[2.2.1]hept-2-yl acetate (9CI) (CA  
INDEX NAME)

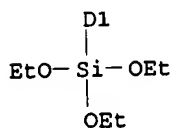
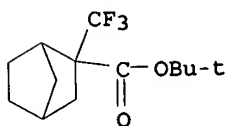
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CRN 474559-50-7  
CMF C15 H25 F3 O5 Si  
CCI IDS



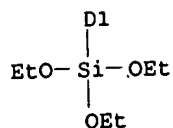
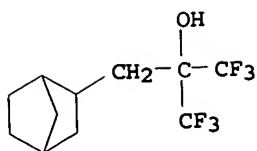
CM 2

CRN 474559-06-3  
CMF C19 H33 F3 O5 Si  
CCI IDS



CM 3

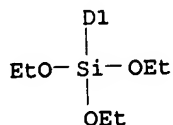
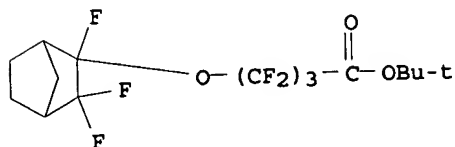
CRN 365546-74-3  
CMF C17 H28 F6 O4 Si  
CCI IDS



RN 474657-69-7 HCAPLUS  
 CN Butanoic acid, 2,2,3,3,4,4-hexafluoro-4-[[2,3,3-trifluoro-5(or 6)-(triethoxysilyl)bicyclo[2.2.1]hept-2-yl]oxy]-, 1,1-dimethylethyl ester, polymer with 5(or 6)-(triethoxysilyl)- $\alpha,\alpha$ -bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol (9CI) (CA INDEX NAME)

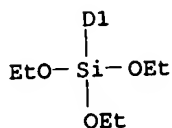
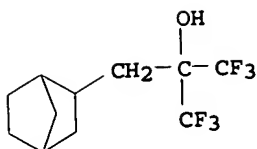
CM 1

CRN 474559-52-9  
 CMF C21 H31 F9 O6 Si  
 CCI IDS

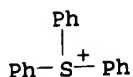


CM 2

CRN 365546-74-3  
 CMF C17 H28 F6 O4 Si  
 CCI IDS



IT 4270-70-6  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (radiation-sensitive polysiloxane resin composition)  
 RN 4270-70-6 HCAPLUS  
 CN Sulfonium, triphenyl-, chloride (8CI, 9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

IC ICM C08G077-24  
 ICS C08L083-08; G03F007-075; G03F007-039  
 CC 37-3 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 35  
 IT 121-44-8, Triethylamine, uses 144-62-7, Oxalic acid, uses  
 144317-44-2, Triphenylsulfonium nonafluoro-n-  
 butanesulfonate 194999-82-1 345580-99-6, uses  
 474516-38-6 474516-40-0 474516-42-2  
 474516-46-6 474516-48-8 474516-50-2  
 RL: CAT (Catalyst use); USES (Uses)  
 (radiation-sensitive polysiloxane resin composition)  
 IT 474559-53-0P 474559-54-1P 474559-55-2P 474559-56-3P  
 474559-57-4P 474559-58-5P 474559-59-6P 474657-62-0P  
 474657-63-1P 474657-64-2P 474657-65-3P 474657-66-4P  
 474657-67-5P 474657-68-6P 474657-69-7P  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);  
 PRP (Properties); PREP (Preparation); USES (Uses)  
 (radiation-sensitive polysiloxane resin composition)  
 IT 75-75-2, Methanesulfonic acid 78-10-4, Tetraethoxysilane  
 110-01-0 328-70-1, 1-Bromo-3,5-bis(trifluoromethyl)benzene  
 355-75-9, Decafluorocyclohexene 363-72-4, Pentafluorobenzene  
 402-43-7, 1-Bromo-4-(trifluoromethyl)benzene 461-96-1,  
 1-Bromo-3,5-difluorobenzene 559-40-0, Octafluorocyclopentene  
 998-30-1, Triethoxysilane 2031-67-6, Triethoxymethylsilane  
 2367-76-2, 1-Bromo-2,4,6-trifluorobenzene 4270-70-6  
 4667-99-6, Chlorotriethoxysilane 20900-19-0, 1-Butoxynaphthalene  
 24424-99-5 64248-56-2, 1-Bromo-2,6-difluorobenzene 195057-79-5  
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 474516-24-0 474516-26-2 474516-28-4 474516-33-1  
 474516-35-3 474516-55-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (radiation-sensitive polysiloxane resin composition)



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L90 ANSWER 16 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2002:848227 HCAPLUS  
DOCUMENT NUMBER: 137:360309  
TITLE: Radiation-sensitive positive  
resist compositions showing wide  
defocus latitude and less particle generation  
on storage  
INVENTOR(S): Kodama, Kunihiko; Sato, Kenichiro  
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 90 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 4  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO.  | DATE         |
|---------------|------|----------|------------------|--------------|
| JP 2002323767 | A2   | 20021108 | JP 2001-157366   | 2001<br>0525 |
| US 2003017415 | A1   | 20030123 | US 2002-79414    | 2002<br>0222 |
| US 6858370    | B2   | 20050222 |                  |              |
| TW 548523     | B    | 20030821 | TW 2002-91103178 | 2002<br>0222 |
|               |      |          | JP 2001-48602    | 2001<br>0223 |
|               |      |          | JP 2001-48783    | 2001<br>0223 |
|               |      |          | JP 2001-48784    | 2001<br>0223 |
|               |      |          | JP 2001-48880    | 2001<br>0223 |
|               |      |          | JP 2001-157366   | 2001<br>0525 |
|               |      |          | JP 2001-157367   | 2001<br>0525 |

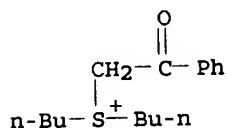
## PRIORITY APPLN. INFO.:

AB The compns., especially suited for deep-UV lithog., comprise acid  
generators containing triarylsulfonium salts and phenathylsulfonium  
salts, alicyclic hydrocarbon resins increasing alkali  
solubility upon reaction with acids, bases, and fluoro and/or  
silicone surfactants,. The compns. may contain OH-bearing and  
-free solvent mixts.

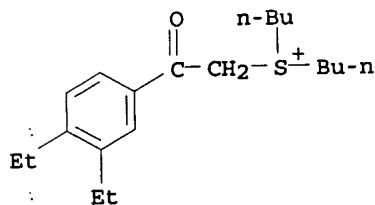
IT 474510-73-1 474510-75-3  
 RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)  
 (photoacid generators; radiation-sensitive pos. resist compns. showing wide defocus latitude and less particle generation on storage)  
 RN 474510-73-1 HCAPLUS  
 CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)  
 CM 1  
 CRN 45187-15-3  
 CMF C4 F9 O3 S

$-\text{O}_3\text{S}-(\text{CF}_2)_3-\text{CF}_3$

CM 2  
 CRN 19023-62-2  
 CMF C16 H25 O S



RN 474510-75-3 HCAPLUS  
 CN Sulfonium, dibutyl[2-(3,4-diethylphenyl)-2-oxoethyl]-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)  
 CM 1  
 CRN 474510-74-2  
 CMF C20 H33 O S



CM 2  
 CRN 45187-15-3  
 CMF C4 F9 O3 S

$-\text{O}_3\text{S}-(\text{CF}_2)_3-\text{CF}_3$

IC ICM G03F007-039

ICS C08K005-00; C08K005-36; C08L101-00; G03F007-004; H01L021-027  
 • CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 38, 76

IT **Positive photoresists**  
 (chemical amplified, deep-UV-sensitive; radiation-sensitive  
**pos. resist** compns. showing wide defocus  
 latitude and less particle generation on storage)

IT **Surfactants**  
 (radiation-sensitive **pos. resist** compns.  
 showing wide defocus latitude and less particle generation on  
 storage)

IT **Polysiloxanes, uses**  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered  
 material use); USES (Uses)  
 (surfactants; radiation-sensitive **pos. resist**  
 compns. showing wide defocus latitude and less particle  
 generation on storage)

IT 66003-78-9 144317-44-2 177034-80-9 241806-75-7 258872-05-8  
 284474-28-8 301664-71-1 338445-24-2 398141-18-9  
 398141-19-0 398141-23-6 414911-37-8 421555-71-7  
 421555-72-8 454471-07-9 454471-11-5 454471-15-9  
 454471-16-0 474510-73-1 474510-75-3  
 474510-76-4  
 RL: CAT (Catalyst use); TEM (Technical or engineered material  
 use); USES (Uses)  
 (photoacid generators; radiation-sensitive **pos.**  
**resist** compns. showing wide defocus latitude and less  
 particle generation on storage)

IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl  
 methacrylate copolymer 391232-36-3P 398140-57-3P  
 398140-88-0P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered  
 material use); PREP (Preparation); USES (Uses)  
 (radiation-sensitive **pos. resist** compns.  
 showing wide defocus latitude and less particle generation on  
 storage)

IT 484-47-9, 2,4,5-Triphenylimidazole 3040-44-6,  
 1-Piperidineethanol 6674-22-2, DBU 19293-63-1,  
 Dicyclohexylmethylamine 19600-49-8, Triphenylsulfonium acetate  
 24544-04-5, 2,6-Diisopropylaniline  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered  
 material use); USES (Uses)  
 (radiation-sensitive **pos. resist** compns.  
 showing wide defocus latitude and less particle generation on  
 storage)

IT 96-48-0,  $\gamma$ -Butyrolactone 97-64-3, Ethyl lactate  
 108-94-1, Cyclohexanone, uses 110-43-0, 2-Heptanone 763-69-9  
 1320-67-8, Propylene glycol methyl ether 84540-57-8, Propylene  
 glycol methyl ether acetate 288303-55-9 364736-22-1  
 391613-77-7 398140-36-8 398140-38-0 398140-40-4  
 398140-43-7 398140-45-9 398140-47-1 398140-48-2  
 398140-50-6 398140-52-8 398140-55-1 398140-59-5  
 398140-60-8 398140-62-0 398140-64-2 398140-65-3  
 398140-68-6 398140-69-7 398140-71-1 398140-72-2  
 398140-73-3 398140-74-4 398140-75-5 398140-76-6  
 398140-77-7 398140-78-8 398140-79-9 398140-80-2  
 398140-81-3 398140-82-4 398140-84-6 398140-85-7  
 398140-86-8 398140-87-9 398140-89-1 398140-91-5  
 398140-92-6 398140-93-7 398140-94-8 398140-95-9  
 398140-97-1 398140-98-2 398140-99-3 398141-00-9  
 398141-03-2 398141-04-3 398141-06-5 398141-08-7  
 398141-10-1 398141-11-2 398141-13-4 398141-14-5  
 398141-16-7 405509-18-4 405509-19-5 405509-29-7  
 405509-30-0  
 RL: TEM (Technical or engineered material use); USES (Uses)

(radiation-sensitive pos. resist compns.  
showing wide defocus latitude and less particle generation on  
storage)

IT 137462-24-9, Megafac F 176 216679-67-3, Megafac R 08  
RL: MOA (Modifier or additive use); TEM (Technical or engineered  
material use); USES (Uses)  
(surfactants; radiation-sensitive pos. resist  
compns. showing wide defocus latitude and less particle  
generation on storage)

L90 ANSWER 17 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2002:848220 HCAPLUS  
DOCUMENT NUMBER: 137:360306  
TITLE: Radiation-sensitive positively working  
photosensitive composition  
INVENTOR(S): Kodama, Kunihiro; Sato, Kenichiro  
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 92 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 4  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE              |
|---------------|------|----------|-----------------|-------------------|
| JP 2002323758 | A2   | 20021108 | JP 2001-157367  | 2001<br>0525      |
| US 2003017415 | A1   | 20030123 | US 2002-79414   | 2002<br>0222      |
| US 6858370    | B2   | 20050222 | JP 2001-48783   | A<br>2001<br>0223 |
|               |      |          | JP 2001-48602   | A<br>2001<br>0223 |
|               |      |          | JP 2001-48784   | A<br>2001<br>0223 |
|               |      |          | JP 2001-48880   | A<br>2001<br>0223 |
|               |      |          | JP 2001-157366  | A<br>2001<br>0525 |
|               |      |          | JP 2001-157367  | A<br>2001<br>0525 |

AB The composition comprises (A) acid generator sensitive to actinic ray  
or radiation, (B) (poly)alicyclic hydrocarbon polymer  
which becomes alkali soluble by acid decomposition, (C) basic compound, and  
(D) fluoro and/or silicone surfactant, where the acid  
generator contains  $\geq 1$  compound having a phenacyl sulfonium  
salt structure and  $\geq 1$  nonarom. sulfonium salt. The composition

provides a photoresist having high resolution and wide defocus latitude by exposure with a ring-shaped light source and a photoresist having good pattern profile by exposure with a half-tone phase-shift mask. Generation of particles under storage of the composition is suppressed.

IT 474510-73-1 474510-75-3

RL: TEM (Technical or engineered material use); USES (Uses)  
(acid generator; radiation-sensitive pos. working  
photosensitive composition for high resolution and storage stability)

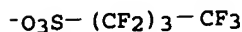
RN 474510-73-1 HCAPLUS

CN Sulfonium, dibutyl(2-oxo-2-phenylethyl)-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 45187-15-3

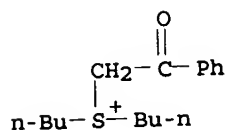
CMF C4 F9 O3 S



CM 2

CRN 19023-62-2

CMF C16 H25 O S



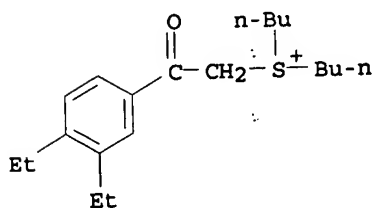
RN 474510-75-3 HCAPLUS

CN Sulfonium, dibutyl[2-(3,4-diethylphenyl)-2-oxoethyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 474510-74-2

CMF C20 H33 O S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>3</sub>-CF<sub>3</sub>

IC ICM G03F007-004

ICS G03F007-004; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38

IT **Positive photoresists**

(radiation-sensitive pos. working photosensitive composition for high resolution and storage stability)

IT 160481-39-0 171292-12-9 299416-57-2 301153-78-6  
340986-46-1 347193-28-6 371921-65-2 383367-32-6  
398141-21-4 414911-37-8 414911-52-7 454471-07-9  
454471-11-5 454471-15-9 454471-16-0 454471-23-9  
455521-76-3 455521-85-4 455521-89-8 474276-93-2  
474510-72-0 474510-73-1 474510-75-3  
474510-76-4 474510-79-7 474510-82-2 474510-86-6  
474510-92-4 474510-98-0 474511-05-2 474511-06-3  
474511-08-5 477328-06-6

RL: TEM (Technical or engineered material use); USES (Uses)  
(acid generator; radiation-sensitive pos. working photosensitive composition for high resolution and storage stability)

IT 70-11-1, Phenacyl bromide 110-01-0,  
Tetrahydrothiophene 1493-13-6, Trifluoromethanesulfonic acid  
1763-23-1, Perfluorooctanesulfonic acid 5469-26-1, 1-  
Bromo-3,3-dimethyl-2-butanone 29420-49-3, Potassium  
perfluorobutanesulfonate

RL: RCT (Reactant); RACT (Reactant or reagent)

(radiation-sensitive pos. working photosensitive composition for high resolution and storage stability)

L90 ANSWER 18 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:354010 HCAPLUS

DOCUMENT NUMBER: 136:361837

TITLE: Polymers and photoresist compositions for short wavelength photolithographic imaging  
Taylor, Gary N.; Szmanda, Charles R.

INVENTOR(S): Shipley Company, L.L.C., USA

PATENT ASSIGNEE(S): U.S. Pat. Appl. Publ., 8 pp.

SOURCE: CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE      |
|------------------------|------|----------|-----------------|-----------|
| US 2002055060          | A1   | 20020509 | US 2001-948459  | 2001 0908 |
| US 6749986             | B2   | 20040615 | US 2000-231046P | 2000 0908 |
| PRIORITY APPLN. INFO.: |      |          | US 2000-252662P | 2000 1122 |

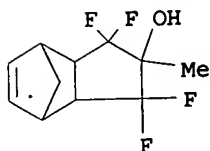
AB The present invention relates to polymers as a resin component for photoresist compns., particularly chemical-amplified pos. acting photoresist compns. Polymers and resists of

the invention are particularly useful for imaging with short wavelength radiation, such as sub-200 nm and preferably about 157 nm. Polymers of the invention contain one or more groups alpha to an acidic site that are substituted by one or more electron-withdrawing groups.

IT 422307-88-8DP, reaction product with chloromethyl ethoxyethyl ether  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (chemical-amplified pos. photoresist compns. for vacuum-UV photolithog. imaging)  
 RN 422307-88-8 HCAPLUS  
 CN 4,7-Methano-1H-inden-2-ol, 1,1,3,3-tetrafluoro-2,3,3a,4,7,7a-hexahydro-2-methyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

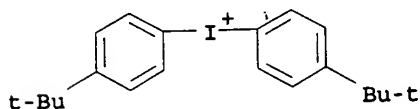
CRN 422307-87-7  
 CMF C11 H12 F4 O



IT 84563-54-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (photoacid generator; chemical-amplified pos. photoresist compns. for vacuum-UV photolithog. imaging)  
 RN 84563-54-2 HCAPLUS  
 CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

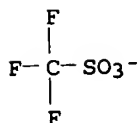
CM 1

CRN 61267-44-5  
 CMF C20 H26 I



CM 2

CRN 37181-39-8  
 CMF C F3 O3 S



IC ICM G03F007-039  
 INCL 430270100  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)  
 Section cross-reference(s): 35, 38  
 ST chem amplified pos photoresist vacuum UV  
 photolithog polymer resin  
 IT Positive photoresists  
 (chemical-amplified, vacuum-UV; polymers and photoresist compns.  
 for short wavelength photolithog. imaging)  
 IT 69602-59-1DP, reaction product with norbornene tricycloic  
 tetrafluoroalc. homopolymer 422307-88-8DP, reaction  
 product with chloromethyl ethoxyethyl ether  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered  
 material use); PREP (Preparation); USES (Uses)  
 (chemical-amplified pos. photoresist compns.  
 for vacuum-UV photolithog. imaging)  
 IT 84563-54-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (photoacid generator; chemical-amplified pos.  
 photoresist compns. for vacuum-UV photolithog. imaging)  
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L90 ANSWER 19 OF 19 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:803902 HCAPLUS  
 DOCUMENT NUMBER: 136:126408  
 TITLE: Transparent resins for 157-nm lithography  
 AUTHOR(S): Dammel, Ralph R.; Sakamuri, Raj; Romano,  
 Andrew R.; Vicari, Richard; Hacker, Cheryl;  
 Conley, Will; Miller, Daniel A.  
 CORPORATE SOURCE: AZ Electronic Materials, Clariant Corporation,  
 Somerville, NJ, USA  
 SOURCE: Proceedings of SPIE-The International Society  
 for Optical Engineering (2001),  
 4345(Pt. 1, Advances in Resist Technology and  
 Processing XVIII), 350-360  
 CODEN: PSISDG; ISSN: 0277-786X  
 PUBLISHER: SPIE-The International Society for Optical  
 Engineering  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The development of sufficiently transparent resin systems is one  
 of the key elements required for a successful and timely  
 introduction for 157 nm lithog. This paper reports on the Simple  
 Transmission Understanding and Prediction by Incremental Dilution  
 (STUPID) model, a quick back-of-the-envelope increment scheme to  
 estimate the absorption of polymers at 157 nm. A number of promising  
 candidate resins based on norbornenes are discussed, and results  
 with a first 157 nm resin system developed at the University of  
 Austin are presented. The new system is based on copolymers of  
 norbornene-5-methylenehexafluoroisopropanol (NMHFA) and t-Bu  
 norbornene carboxylate (BNC), formulated with an acetal additive  
 obtained by copolymer of t-Bu norbornene-5-trifluoromethyl-5-  
 carboxylate (BNTC) with carbon monoxide. Lithog. performance of  
 this system extends to 110 nm dense features using standard  
 illumination and a binary mask, or 80 nm semi-dense and 60 nm  
 isolated features with a strong phase shift mask. The dry etch  
 resistance of this resist is found to be slightly lower than  
 APEX-E DUV resist for polysilicon but superior to it for oxide  
 etches.

IT 144317-44-2, Triphenylsulfonium nonaflate  
 370102-72-0  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (fluorine-containing norbornene transparent resins for 157-nm  
 lithog.)  
 RN 144317-44-2 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-



butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 45187-15-3

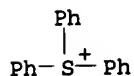
CMF C4 F9 O3 S

$\text{-O}_3\text{S- (CF}_2\text{)}_3\text{-CF}_3$

CM 2

CRN 18393-55-0

CMF C18 H15 S



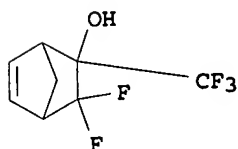
RN 370102-72-0 HCAPLUS

CN Bicyclo[2.2.1]hept-5-en-2-ol, 3,3-difluoro-2-(trifluoromethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 370102-71-9

CMF C8 H7 F5 O



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 88403-53-6 144317-44-2, Triphenylsulfonium nonaflate  
302580-86-5 357397-06-9 357397-07-0 367524-27-4  
370099-14-2 370102-69-5 370102-72-0 370102-74-2  
370102-75-3 370102-77-5 370102-79-7 370102-81-1  
370102-83-3

RL: TEM (Technical or engineered material use); USES (Uses)

(fluorine-containing norbornene transparent resins for 157-nm lithog.)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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